

IMPACT OF A PROBLEM-SOLVING VOCATIONAL INTERVENTION
ON CAREER DECISION-MAKING SELF-EFFICACY AND CAREER INDECISION

by

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To my mother, Hazeline McNeill

for giving me life.

And to the memory of Marvin Word, Sr.

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This study investigated the effects of teaching students problem-solving strategies, versus use of the Self-Directed Search, on their career decision-making self-efficacy and career indecision. This study also examined the relationship between career decision-making self-efficacy and career indecision. Subjects in this study were 33 college sophomores who indicated on career questionnaires that they were having difficulty selecting a major or career.

Subjects were pretested on the Career Decision Scale (CDS) and the Career Decision-Making Self-Efficacy Scale (CDMSES), and then were randomly assigned to one of three groups. Students in the treatment group attended two one-hour sessions in which they received training in problem-solving strategies and career decision making. Students in the treatment-control group completed the Self-Directed Search (SDS) and had a one-hour individual follow-up session with the principal investigator.

Wait-list control group subjects received no vocational intervention during the intervention phase of the study. However, at the completion of the study, these control-group subjects were offered their choice of receiving training in problem-solving strategies or completing the SDS. All subjects were posttested on the CDS and the CDMSES four weeks after pretesting.

Results indicated that there was a significant negative correlation between career decision-making self-efficacy and career indecision. No support was found for the hypothesis that problem-solving training would be more effective than the SDS or no treatment in reducing career indecision. Results indicated that students became less career undecided regardless of which treatment they received. However, students in the problem-solving training group showed significantly greater increases in career decision-making self-efficacy than students in the control group. There were no statistically significant differences between the problem-solving training group and the Self-Directed Search group or between the Self-Directed Search group and the control group in level of change in career decision-making self-efficacy.

This study concluded that there was no evidence to support the differential effectiveness of problem-solving training in reducing career indecision, though it was more effective than no treatment in enhancing career decision-making self-efficacy. Recommendations for future research are offered.

CHAPTER 1 INTRODUCTION

Deciding upon a college major and subsequent career is among the most important aspects of college student life. Many of the requests for counseling from students at university counseling centers are for assistance in making career-related decisions. In accordance with the significance of career decision making for college students, the vocational literature is replete with studies assessing the factors that influence career decision making and career indecision.

O'Neill, Meeker, and Borgers (1978) proposed that six general factors affect the career decision-making process: individual factors (e.g. abilities, interests, self-expectancies), societal factors (e.g. educational experiences), familial factors (e.g. childhood experiences, parents as role models), socioeconomic factors (e.g. race, sex, social class), situational factors (e.g. chance), and psychosocial-emotional factors (e.g. fear of failure, fear of success, lack of confidence). In a test of the impact of these six factors on the career decision making of high school, undergraduate, and graduate students, O'Neil, Ohlde, Tollefson, Barke, and Piggott (1980) concluded that multiple internal and external factors affect career decision making. Similarly, Mitchell and Krumboltz (1984) suggested that the process of decision making is

influenced by a multitude of environmental and personal factors, such as cognitions, self-statements, and skills in problem solving.

Numerous factors also have been suggested as correlates of career indecision. Mendonca and Siess (1976) proposed that vocational indecision may result from cognitive problem-solving operations which are lacking or inhibited. Holland and Holland (1977) stated that lack of confidence in decision-making skills contributes to career indecision. Hawkins, Bradley, and White (1977) contended that anxiety may be associated with indecision. Mitchell (1980), cited in Mitchell and Krumboltz (1984), reported that self-efficacy is implicated in the reasons that students give for being indecisive about career choice.

The vocational literature is voluminous and the list of potential correlates of career indecision is extensive. Several researchers (Mitchell & Krumboltz, 1984; Sepich, 1987; Taylor & Betz, 1983) have drawn from the vastness of the vocational literature and have summarized some of the variables which may be associated with vocational indecision. Some of these variables include anxiety, lack of confidence in decision-making skills, lack of clear sense of personal identity, external barriers to preferred choice, lack of a sense of immediacy of need about making a decision, low academic achievement, ability, and vocational maturity.

Despite, or perhaps because of the amount of research that has been done on the factors influencing career decision making and career indecision, there are some inconsistencies in findings and the results

largely remain inconclusive (Sepich, 1987). Given the significance of career decision making to college student development, it remains important to continue to assess those variables that are associated with career decision making and career indecision. Perhaps by understanding the correlates of indecision, interventions can be devised to facilitate career decision making and to decrease vocational indecision.

Mitchell and Krumboltz (1984) alluded to the importance of cognitive variables when they suggested that the process of career decision making may be influenced by factors such as cognitions, self-statements, and skills in problem solving. They recommended further examination of the personal cognitions affecting career decision making. More directly, Rounds and Tinsley (1984) proposed that maladaptive cognitive processes may contribute to the development and maintenance of some vocational problems. Two cognitive variables which have received attention for their potential relevance to understanding career decision making and career indecision are self-efficacy and problem solving.

Self-efficacy is concerned with judgments of personal capabilities in successfully executing courses of action required to produce particular outcomes (Bandura, 1982, 1984). Judgments of self-efficacy influence which activities people engage in, which activities people avoid, how much effort they expend, and how long they will persist in the face of difficulty (Bandura, 1977, 1982).

Consistent with Bandura's theory, Hackett and Betz (1981) suggested that women's attraction to and avoidance of some occupations are due to their perceived effectiveness in these occupational roles. Hackett and Betz (1981) are credited with introducing self-efficacy theory to the vocational literature when they applied Bandura's social learning perspective to understanding women's vocational behavior (Greenhaus & Parasuraman, 1986; Phillips, Cairo, Blustein, & Myers, 1988). They concluded that self-efficacy beliefs serve as an important cognitive influence on career decisions and help people determine the range of career options.

Since Hackett and Betz's initial application of self-efficacy theory to vocational behavior, increasing attention has focused on self-efficacy and its potential merit in explaining career choice behaviors. Mitchell and Krumboltz (1984) suggested that self-efficacy may shed light on why people experience anxiety in career decision making. In a recent review of the self-efficacy literature, Lent and Hackett (1987) reported several studies in which a correlation was found between self-efficacy and certain career behaviors: career choice (Betz & Hackett, 1981), vocational interests (Betz & Hackett, 1981), career indecision (Taylor & Betz, 1983), and range of perceived career options (Lent, Brown, & Larkin, 1987). Thus, Lent and Hackett (1987) proposed that self-efficacy theory offers promise in understanding, investigating, and facilitating career development and suggested a need to relate self-efficacy to career decision making. Similarly, Lent, Brown, and Larkin (1987) pointed to a need to clarify the utility of self-efficacy in the career domain.

Problem solving also has been considered to have utility in understanding and explaining career decision making. There is a certain similarity between the two processes, and Mitchell and Krumboltz (1984) have suggested that many issues relevant to problem solving overlap with those in decision making.

Problem solving is defined as "...a behavioral process...which (1) provides a variety of potentially effective responses to the problem situation and (2) increases the likelihood of selecting the most effective response from among these various alternatives" (Goldfried & Davison, 1976, p. 187). Problem solving typically involves a series of steps: problem definition, generation of alternatives, evaluation of alternatives, selection of one best alternative (i. e. decision making), action, and follow-up evaluation of the consequences of that action (D'Zurilla & Goldfried, 1971; Goldfried & Davison, 1976).

Larson and Heppner (1985) suggested that the process by which a person makes career decisions may be related to problem solving. Similarly, Sepich (1987) contended that the stages in problem solving may relate to areas in which undecided individuals have difficulty (e.g. defining and recognizing options). Thus, according to Rounds and Tinsely (1984), career undecided individuals may need assistance in generating, evaluating, and selecting alternatives. They also may need assistance learning to formulate plans to make decisions. Thus, career decision making may be facilitated or hampered by the skills in problem

solving that an individual possesses. Heppner (1987) suggested that how one solves problems may affect how one engages in career planning activities. Larson (1987) offered that a person's self-perception of ability to solve a career concern could affect how that individual works through the problem.

Problem solving also has been implicated in career indecision. Mendonca and Siess (1976) suggested that vocational indecision may result from deficiencies in problem solving. Larson and Heppner (1985) proposed that a person's career indecision might be a specific instance of problem solving behavior, and reported that individuals who perceive themselves to be successful problem solvers (i.e. self-perceived effective problem solvers) are more certain about decision-making ability and occupational potential.

Statement of the Problem

Despite the vast amount of research that has been conducted on correlates of career decision-making and career indecision, there still is a lack of clarity on the relationship between career indecision and the variables which may influence it. The role of cognitive factors (e.g. self-efficacy, problem solving) seems promising and is worthy of further research. Thus, there is a need to continue to assess those variables which may play a role in facilitating career decision making and reducing career indecision. In addition, vocational interventions based on the factors which have been shown to be associated with indecision need to be designed and empirically investigated to assess

their impact on career indecision. Thus, the present study addresses this two-fold need.

Purpose of the Study

To the extent that both self-efficacy and problem solving may be relevant in explaining career indecision, further research with these variables is warranted to determine their relationship to career decision making and career indecision.

Therefore, the purpose of this proposed study was to investigate the impact on career decision-making self-efficacy and career indecision of teaching students decision-making skills using a problem-solving method. This study also examined the relationship between career decision-making self-efficacy and career indecision.

Need for the Study

The goal of counselors when working with students who have career-related difficulties is to facilitate their career development (Fretz, 1981) and to help them make "good" choices (Harmon & Farmer, 1983). This process perhaps can best be facilitated if there is an understanding of the factors which are associated with career decision making and career indecision. By identifying and understanding the correlates of career decision making and career indecision, effective career counseling interventions and preventive career programs can be developed (O'Neil et al., 1980).

It is not enough, however, to simply assess the correlates of career decision making and career indecision. It also is important to

intervene to change indecision, and to ascertain that indecision can, in fact, be influenced by interventions (Harmon & Farmer, 1983). To the extent that individuals are career undecided because of deficits in problem-solving skills, interventions need to be designed which will teach decision-making skills through problem-solving strategies. To the extent that individuals are career undecided because of low judgments of personal efficacy about making career decisions (i.e. low career decision-making self-efficacy), then interventions need to be designed which will raise career decision-making self-efficacy.

Given that how one solves problems may affect career decision making and that vocational indecision may be due to deficiencies in problem solving, it follows that facilitating career decision making and alleviating vocational indecision may involve training in problem solving. In fact, Mendonca and Siess (1976) asserted that simply giving vocationally indecisive clients information about occupational alternatives is not enough to help them make a choice. Rather, counseling for indecisiveness might involve providing training in problem solving. Sepich (1987) echoed this concern and hypothesized that undecideds may not be able to benefit from career interventions until certain problems or problem-solving deficits are removed. Harmon and Farmer (1983) recommended that vocational psychologists investigate the usefulness of a problem-solving training program in improving decision-making skills. Similarly, Mitchell and Krumboltz (1984)

indicated that more research is needed on D'Zurilla and Goldfried's (1971) problem-solving recommendations for career decision-making problems.

Given that self-efficacy also may play a role in career decision making and career indecision, several authors have pointed to a similar need for vocational intervention studies on self-efficacy. After finding a relationship between career decision-making self-efficacy and career indecision, Taylor and Betz (1983) suggested a need to look at interventions designed to increase career decision-making self-efficacy expectations. Betz and Hackett (1986) contended that the most important test of the career self-efficacy construct will come in studies which examine the effectiveness of theory-based interventions. Lent and Hackett (1987) implied a need for intervention studies on self-efficacy when they concluded that, to their knowledge, no published research on counseling interventions for career self-efficacy existed.

Although it is important to identify those factors which may be associated with career decision making and career indecision, and to design and implement vocational interventions around those factors, it also is important to assess the impact of these interventions on career indecision. It is to these issues that this study addresses itself, since such a line of research has significant implications for counseling practice and vocational research.

Significance of the Study

This study adds to the existing literature on the factors associated with career indecision by examining the relationship between

career decision-making self-efficacy and career decidedness. To the extent that this study replicates the findings of Taylor and Betz (1983) of a relationship between vocational indecision and career decision-making self-efficacy expectations, more credence can be given to the influence of self-efficacy expectations on career decision making, thus yielding implications for designing counseling strategies to strengthen self-efficacy for career decision making.

This study further extends the application of self-efficacy theory to career decision making by testing the impact of a vocational intervention on altering career self-efficacy expectations. Such an approach is especially significant given that Lent and Hackett (1987) stated that no published research on counseling interventions for career self-efficacy existed.

Perhaps the most significant contribution of this study is the design and testing of a problem-solving vocational intervention to impact career indecision and career decision-making self-efficacy. An intervention based on a problem-solving method and the testing of that intervention on self-efficacy adds to the body of literature which has begun to examine the role of cognitive variables in career decision-making. Additionally, the intervention addresses a practical issue relevant to counselors and clients alike. To the extent that the intervention is associated with decreases in career indecision, counselors may be encouraged to utilize similar problem-solving strategies in working with career undecided clients. A problem-solving

model such as the one used in this study will teach individuals how to recognize and select among career alternatives, help them be more confident in their ability to make decisions by virtue of increasing their decision-making skills, and ultimately help them to be more career decided. Thus, this problem-solving vocational intervention could potentially help counselors be more effective in facilitating career decision-making for their career undecided clients.

This study potentially has numerous implications for future research. The results of this study, which will be presented in Chapter 4, may suggest comparing the problem-solving intervention investigated in this study with other vocational interventions, such as career discussion groups and computerized career interventions, to determine which approach is most effective in facilitating career decision making and strengthening career decision-making self-efficacy expectations. The results also might point to the need to investigate the impact of this intervention on other variables which have been shown to be associated with career indecision (e.g. anxiety, vocational maturity). Recommendations for future research are discussed more fully in Chapter 5.

Organization of the Study

This study is based on a five-chapter model. The first chapter provides a general overview of the problem, and states the purpose, need, and significance of the study. Chapter 2 is a review of the relevant literature. Chapter 3 presents the research methodology for the study. The results of the study are presented in Chapter 4, and

Chapter 5 contains a discussion of the results, conclusions, implications, and recommendations for future research.

CHAPTER 2

REVIEW OF LITERATURE

A review of the literature relevant to the variables of interest in this present study will be presented in this chapter. The research on vocational indecision and vocational interventions is voluminous. There also is a growing body of research on self-efficacy and problem solving. Given the extensiveness of the research on these constructs, and in an effort to maintain clarity and conciseness, this review focuses on those studies most relevant to this particular study.

The following review contains four sections of selected literature specifically relevant to each of the following areas: (1) vocational indecision, (2) self-efficacy, (3) problem solving, and (4) vocational interventions.

Vocational Indecision

One of the most important decisions facing college students is the selection of a college major and occupation (Rubinton, 1980). Despite the importance of choosing a major and career, it is estimated that perhaps as many as 18% to 50% of college students are undecided (Gordon, 1981). It follows that a large number of clients at counseling centers are undecided students seeking assistance with vocational decisions (Harman, 1973). The challenge for counselors working with vocationally

undecided individuals is to help them learn to make better career decisions by enhancing their self-awareness and increasing their knowledge of occupations and of the process of career development.

Intervening with the undecided can be facilitated through an understanding of vocational indecision. To that aim, there is an extensive body of research on vocational indecision with much of it centered on distinguishing the career-decided from the career-undecided individual. Findings from studies which have sought to describe the career-undecided individual have led to the delineation of numerous variables which may be related to career indecision. The results from such studies, however, have been inconsistent and somewhat confusing, and have also led researchers to speculate that vocational indecision is not a dichotomous variable (i.e. decided, undecided), but rather is a multidimensional construct with different subtypes. The following review addresses these areas of research in vocational indecision.

The Vocationally Undecided

Some studies have reported differences between the vocationally undecided and decided individuals. Kimes and Troth (1974) reported that vocationally undecided individuals are more anxiety-prone than their decided counterparts. Lunneborg (1975, 1976) indicated that undecideds have lower academic grade point averages than the vocationally decided. Similarly, Taylor (1982) suggested that vocationally decided and undecided individuals may differ in academic ability. In a study examining the relationships among locus of control, fear of success, and

vocational indecision in college students, Taylor (1982) found that the vocationally undecided students had lower American College Test (ACT) scores, had a more external locus of control, and were more fearful of success than the vocationally decided students.

Vocationally decided and undecided individuals also have been shown to differ in certain career planning behaviors and cognitions. In a study with more than 1600 high school and college juniors, Holland and Holland (1977) reported that vocationally decided and undecided students differ in terms of a sense of identity and vocational maturity although they did not differ consistently on most other variables. They concluded that undecided individuals, as distinct from their decided counterparts, may be characterized by interpersonal incompetency, a lack of self-confidence, lack of involvement, anxiety, an unclear and shifting identity, and poor decision-making skills.

In a further effort to clarify the differences between decided and undecided students, Larson, Heppner, Ham, and Dugan (1988) compared them on several career-planning variables. The results indicated that the career-undecided students perceived themselves as less effective problem solvers than the decided students. Additionally, as compared to the career-decided students, the undecided students reported (1) more career problem-solving deficits, (2) more career myths, (3) more pressure to make a career decision, (4) less confidence in their ability to perform academically, (5) less knowledge of the world of work, and (6) more career obstacles (Larson et al., 1988, p. 441).

The studies reviewed above characterize vocationally undecided individuals as distinctively different from their decided counterparts on a number of variables (e.g. anxiety, ability, problem solving). Such differences, however, have not been reported consistently in other studies. Harman (1973) studied vocationally undecided students who either selected a major or did not select a major after receiving counseling. Harman reported that there was little differentiating the vocationally undecided students from the vocationally decided students on measures of personality, interest, and ability. There were no statistically significant differences on these measures between the decided and undecided females, while decided and undecided males differed only on a scale measuring response bias. Similarly, despite finding that vocationally decided and undecided individuals differed on a sense of identity and vocational maturity, Holland and Holland (1977) suggested that vocationally decided and undecided individuals are more alike than different.

Types of Vocational Indecision

Given that, as Taylor (1982) stated, there do not seem to be any major conclusive results distinguishing vocationally decided and undecided individuals, some researchers have proposed moving away from the concept of vocational indecision as a dichotomous variable (i.e. decided or undecided). Holland and Holland (1977) were among the first to suggest that there may be multiple types of vocationally undecided individuals. More specifically, they proposed that there may be three

types of vocationally undecided students: (1) those who felt no need to make a decision at that time and who were delaying their decision, (2) those with slight to moderate doses of immaturity, interpersonal incompetence, anxiety, and alienation, and (3) those with moderate to severe doses of immaturity, interpersonal incompetence, anxiety, and alienation.

Other researchers have concurred with Holland and Holland's (1977) suggestion that the vocationally undecided are a heterogeneous group comprising multiple subtypes. Hartman, Fuqua, and Jenkins (1986) stated that evidence exists for a three-group typology of career indecision: (1) a career-decided group, (2) a chronically undecided group who are trait anxious, have less stable self-perceptions, and who have a more externalized locus of control, and finally, (3) a developmentally undecided group whose indecision is related more to state anxiety and normal maturational processes. More recently, the results of cluster analyses conducted by Larson, Heppner, Ham, and Dugan (1988) and Lucas and Epperson (1988) revealed four and five clusters, respectively, of vocationally undecided individuals. Based upon the results of these cluster analyses, these researchers concluded that vocationally undecided individuals do comprise multiple subtypes.

Although research is beginning to point to the existence of subtypes of vocational indecision, there is little consistency in the findings across studies. Some studies have found the existence of three subtypes of indecision, while others have suggested four or five

subtypes. While it is important to view vocational indecision as more than a dichotomous variable, perhaps a more comprehensive understanding of vocational indecision will come through continued investigation of those factors that correlate with indecision.

Correlates of Vocational Indecision

According to Sepich (1987), correlates of indecision are the most frequently studied aspect of vocational indecision. In fact, a host of factors have been suggested as correlates of career indecision.

Ability. Ability is one such factor that has been shown to be associated with vocational indecision. Taylor (1982) found that vocationally undecided students had lower ACT scores than did decided students and suggested that such students may be undecided due to lower academic ability. Similarly, Lunneborg (1975, 1976) reported that academic achievement (i.e. lower grade-point averages) predicted indecision in samples of upperclass college students and recent college graduates. Despite these studies which point to a relationship between ability and vocational indecision, Sepich (1987), in a review of the correlates and measurements of career indecision, stated that available evidence is against a relationship between ability and career indecision.

Anxiety. On the other hand, Sepich (1987) contended that anxiety is likely to be related to indecision. Kimes and Troth (1974) investigated the relationship between trait anxiety and career decisiveness and reported that anxiety-proneness tended to increase as

the level of decisiveness decreased. In a study with 427 college students enrolled in a general studies physics course, Hawkins, Bradley, and White (1977) found that anxiety about choice of a major and anxiety in general, predicted level of vocational decidedness. Similarly, O'Hare and Tamburri (1986) examined the relations among trait anxiety, state anxiety, approaches to coping, and career indecision. They reported that trait anxiety and a low sense of personal efficacy were the major predictors of career undecidedness in a sample of undergraduates.

Although evidence seems to indicate that anxiety plays a role in vocational indecision, Sepich (1987) pointed out that some studies (Jones & Chenery, 1980; McGowan, 1977) have not found a relationship between anxiety and indecision. Similarly, Mitchell and Krumboltz (1984) cautioned that no firm conclusions can be made regarding a causal link between anxiety and indecision.

Personality variables. Numerous personality variables have been shown to be related to vocational indecision. In one of the earliest studies on vocational choice, Ziller (1957) found that undecided Army Reserved Officers Training Corps (ROTC) students tended to score low on a measure of utility for risk and suggested that indecision and risk-taking behaviors are negatively correlated. An external locus of control also has been shown to be associated with vocational indecision. Taylor (1982) found that vocationally undecided students tended to view the environmental consequences of their behavior as

controlled by fate, luck, or chance. Similarly, Hartman, Fuqua, and Blum (1985) reported that an external locus of control has direct effects on indecision.

Numerous other correlates of vocational indecision have been reported. Holland and Holland (1977) found that vocational indecisiveness correlated with a lack of confidence about decision-making skills, while Resnick, Fauble, and Osipow (1970) earlier had reported that higher levels of self-esteem correlated positively with certainty of vocational choice. O'Hare and Beutell (1987) examined the relationship between coping factors and level of career indecision for men and women. The results indicated that self-efficacy behavior was negatively related to indecision while symptom altering/avoidant behavior was positively related to vocational indecision for both men and women.

Summary

Several authors (Mitchell & Krumboltz, 1984; Sepich, 1987; Taylor & Betz, 1983) have summarized the variables which have been shown to be associated with indecision. Among these variables include: anxiety, ability/academic achievement, lack of confidence about decision-making skills, lack of interpersonal skills, lack of a clear sense of personal identity, external barriers to preferred choice, lack of a sense of immediacy of need to make a decision, and a lack of structure and confidence. This present review also has indicated a number of personality and other variables which have been found to be related to vocational indecision. Both Holland and Holland (1977) and Mitchell and

Krumboltz (1984) concluded that a host of variables may contribute to vocational indecision.

Despite the vastness of the vocational literature and the number of variables which reportedly influence vocational indecision, there is still a lack of clarity about vocational indecision. Sepich (1987) stated that the literature on vocational indecision is "...a mixed bag, at best" (p. 17). Other researchers (O'Neil, Ohlde, Tollefson, Barke, & Piggot, 1980) have stressed the need for continued assessment of the correlates of career decision making and of the problem areas that inhibit career choice. O'Neil et al. (1980) proposed that identifying and understanding the correlates of indecision may facilitate the implementation of effective vocational counseling interventions.

Thus, in the continued effort to assess those variables that may be associated with vocational indecision, attention has been given to the relevance of cognitive variables. Two cognitive variables which have been implicated as having relevance in explaining career indecision are self-efficacy and problem solving. This review will now address these two variables.

Self-Efficacy

Self-efficacy is concerned with beliefs or expectations about one's ability to successfully perform a specific behavior (Bandura, 1977; Borders & Archadel, 1987; Lent & Hackett, 1987). Self-efficacy expectations, or judgments of personal capabilities, are considered the primary influence on behavior and behavior change. According to Bandura (1977, 1982), judgments of personal efficacy determine whether behaviors

will be attempted, how much effort will be expended, and how long that effort will be sustained in the face of obstacles and aversive experiences.

Bandura (1977) distinguishes self-efficacy expectations from outcome expectations. Outcome expectations are beliefs about the consequences of a behavior. More specifically, outcome expectations are beliefs that the performance of a particular behavior will lead to certain outcomes. Outcome expectations address the question of "what will happen?" whereas self-efficacy expectations address the question, "can I do this?" (Lent & Hackett, 1987).

Self-efficacy expectations vary along three dimensions: magnitude or level, generality, and strength. Magnitude refers to the degree of difficulty of tasks or behaviors that an individual feels capable of performing (Bandura, 1977). Generality refers to range of situations in which an individual feels efficacious (Lent & Hackett, 1987). More specifically, generality is concerned with the degree to which efficacy expectations transfer to different behavioral domains, tasks, or contexts (Bandura, 1977; Galassi & Galassi, 1984; Goldfried & Robins, 1982). Finally, Bandura (1977) states that strength refers to the durability of efficacy expectations in the face of disconfirming evidence. Strength is concerned both with the amount of confidence an individual has in performing the task and persistence in attempting the task despite obstacles (Galassi & Galassi, 1984). Thus, weak expectations of efficacy are likely to be easily extinguished by

disconfirming evidence while strong expectations are likely to persevere in spite of the evidence (Bandura, 1977).

According to Bandura (1977, 1982), self-efficacy expectations may be acquired or altered through four sources of information: performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal. Performance accomplishments, reportedly, are the most powerful source of information. The successful performance of a given behavior raises perceived efficacy for that behavior (Bandura, 1982). Similarly, vicarious experience, or observing the successful performance of a behavior by similar others, can raise efficacy expectations in the observers (Bandura, 1982). Verbal persuasion, or encouragement from others, can raise efficacy expectations by helping people believe that they can succeed in a given task. Finally, emotional arousal impacts self-efficacy expectations. According to Bandura (1982), people are more likely to expect success if they are not aversively aroused, tense, or agitated.

Clinical Self-Efficacy Research

There is a significant body of research on the clinical applications of self-efficacy theory. Much of the early research on self-efficacy theory centered on its applicability to understanding and treating clinical phobias (Hackett & Betz, 1981). A number of these studies involved snake phobics (Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977). The results of these studies indicated that efforts to impact self-efficacy (i.e. desensitization, participant modeling) were

successful in reducing anticipatory fear and in strengthening self-efficacy in coping with snakes and other animals in natural situations. Other studies have examined the relationship between self-efficacy and smoking cessation and maintenance (Condiotte & Lichtenstein, 1981; DiClemente, 1981). Additionally, self-efficacy theory has been applied to athletic attainments (Feltz, 1982), assertiveness (Kazdin, 1979; Lee, 1983, 1984), depression (Davies & Yates, 1982) and achievement behaviors (Brown & Inouye, 1978).

Career Self-Efficacy

Self-efficacy theory also has received increased attention for its potential relevance in the career domain. Self-efficacy theory was introduced into the vocational literature when Hackett and Betz (1981) presented a model relating women's career development to Bandura's social learning theory. They proposed that because of socialization experiences and differential access to the four sources of efficacy information, self-efficacy expectations may develop differently in women and men, leading women to lack strong expectations of personal efficacy for a variety of career options. Thus, according to Hackett and Betz (1981), self-efficacy theory may be useful in explaining women's failure to utilize their talents and abilities in career pursuits and their underrepresentation in many male-dominated fields.

Since its initial introduction into the vocational literature in 1981, self-efficacy theory has been vigorously investigated (Phillips, Cairo, Blustein, & Myers, 1988). Researchers have examined many aspects

of "career self-efficacy", a term used to refer to self-efficacy expectancies in relation to the various behaviors involved in career choice and adjustment (Betz & Hackett, 1986; Lent & Hackett, 1987). Given that self-efficacy is situation and behavior specific, more descriptive terms are used to refer to specific aspects of career self-efficacy (e.g. occupational self-efficacy, math self-efficacy, career decision-making self-efficacy). The following review examines self-efficacy in relation to career choice, academic achievement and persistence, and career decision making.

Self-efficacy and career choice. The first empirical test of the applicability of self-efficacy theory to career decision making was conducted by Betz and Hackett (1981) who examined gender differences in self-efficacy expectations with regard to the educational requirements and job duties of ten traditionally female and ten traditionally male occupations. They also examined the relationship of occupationally related self-efficacy expectations to the type and number of occupations considered by male and female undergraduates. The results showed that males reported equivalent self-efficacy for both traditionally male and traditionally female occupations. Females, on the other hand, reported significantly higher levels of self-efficacy for traditionally female occupations and lower self-efficacy for traditionally male occupations.

Betz and Hackett (1981) also found that self-efficacy expectations were related to type and number of occupations considered and to expressed interest in traditional and nontraditional occupations.

Similarly, in a study with 152 community college students, Rotberg, Brown and Ware (1987) also found that career self-efficacy expectations, along with career interests, predicted range of career options considered in 15 male dominated, female dominated, and non-gender dominated careers.

In comprehensive reviews of the literature applying self-efficacy theory to the career domain, Betz and Hackett (1986) and Lent and Hackett (1987) reviewed other studies which demonstrated a relationship between self-efficacy and career choice. Layton (1984), cited in Betz & Hackett (1986), found that a self-efficacy model was superior to a locus of control model and that self-efficacy for nontraditional occupations was superior to other variables (i.e. interests, ability, various background variables) in predicting choice of a nontraditional college major. Similarly, Wheeler (1983) reported that occupational self-efficacy was more predictive of occupational preference than an expectancy-valence model which emphasized an interaction between work values and the availability of outcomes in occupations being considered. Finally, Ayres (1980), cited in Betz & Hackett (1986), noted a significant relationship between self-efficacy expectations and consideration of four occupations (i.e. physician, nurse, college professor, and elementary teacher).

The combined results of these studies indicate that self-efficacy plays a role in career choice and, as Betz and Hackett (1981) suggested, may have utility in understanding vocational behavior in general and women's career development in particular.

Self-efficacy and career decision making. A number of studies have demonstrated that self-efficacy influences the career decisions that individuals make and the career options that they consider. But, as Lent and Hackett (1987) suggested, it may be valuable to examine self-efficacy in relation to the process (versus content) of career choice, i. e. how decisions are made. More specifically, research needs to examine students' confidence in their ability to make career decisions (i. e. career decision-making self-efficacy).

Taylor and Betz (1983) developed an instrument, the Career Decision-Making Self-Efficacy Scale (CDMSES), to assess self-efficacy expectations with respect to skills and activities necessary for effective career decision making. The instrument was developed around the five career choice competencies in Crites' (1961, 1965) model of career maturity: (1) self-appraisal, (2) gathering occupational information, (3) goal selection, (4) planning for the future, and (5) problem solving. (The development and properties of this instrument are discussed in detail in Chapter 3).

Using this measure of career decision-making self-efficacy expectations and other measures of vocational indecision, Taylor and Betz (1983) examined the relationship between career decision-making self-efficacy expectations and career indecision in a sample of 346 college students. They found that self-efficacy was significantly related to career indecision. Students who reported less confidence in their ability to complete career decision-making tasks were more career

undecided than those who reported higher levels of confidence. Generally nonsignificant relationships were found between academic ability and career decision-making self-efficacy.

Taylor and Betz (1983) stated that while the results indicated that students generally have confidence in their ability to perform the tasks necessary for effective career decision making, there is a moderately strong (negative) relationship between career indecision and self-efficacy. Although these findings contradicted those of Lent, Brown, and Larkin (1986, 1987) who did not find a relationship between self-efficacy and career indecision, Lent and Hackett (1987) suggested that the results of this study point to the potential usefulness of career decision-making self-efficacy in understanding career indecision.

Self-efficacy and academic achievement and persistence. Self-efficacy also has been examined for its relevance in explaining academic achievement and persistence in academic majors. Lent, Brown, and Larkin (1984, 1986, 1987) have conducted a series of studies examining self-efficacy, career choice, and persistence and academic success in scientific/technical majors. In their initial test of the relationship between self-efficacy expectations and persistence and academic success in science and engineering majors, Lent et al. (1984) found that students who reported strong self-efficacy for scientific/technical occupations achieved higher grades and persisted longer in their majors over a one-year period than students with low self-efficacy.

In an extension of their 1984 study, Lent et al. (1986) assessed the extent to which self-efficacy beliefs, along with other relevant

variables, predicted academic grades, persistence, and range of perceived career options in students considering science and engineering majors. The subjects completed two self-efficacy measures, as well as measures of career indecision, self-esteem, expressed vocational interests, ability, and range of perceived vocational options in technical/scientific careers. The findings indicated that self-efficacy contributed significantly to the prediction of grades, persistence, and range of perceived career options considered in scientific/technical fields. Additionally, it was found that the two self-efficacy scales were not significantly related to general self-esteem or to career indecision. Based upon these results, Lent et al. (1986) concluded that self-efficacy may be related to career-relevant behaviors.

In the third study in this series, Lent et al. (1987) compared self-efficacy, interest congruence, and consequence thinking in predicting academic achievement, persistence, range of perceived career options, and career indecision in students considering science and engineering fields. Interest congruence referred to a match between an individual's occupational interests and those of people in that chosen major or career. Consequence thinking referred to the anticipation of potential outcomes of consequences of a decision. The results indicated that self-efficacy predicted grades, persistence in technical/scientific majors, and together with congruence, predicted range of perceived career options. However, consistent with Lent et al. (1986), self-efficacy did not predict career indecision.

The results of this series of studies by Lent and colleagues points to the potential utility of self-efficacy theory in explaining persistence and academic achievement in certain majors. These findings also support other studies (Betz & Hackett, 1981; Rotbert et al., 1987) which have demonstrated the usefulness of self-efficacy theory in accounting for range of career options considered.

Summary

Self-efficacy expectations may be the primary influence on behavior, determining which behaviors will be attempted and how long an individual will persist in the face of difficulty. Thus, self-efficacy theory has been tested for its utility in explaining a number of behaviors--e.g. phobias, smoking cessation, and achievement behaviors. In addition, it has received increasing attention for its potential relevance in explaining career behaviors. A growing body of research has demonstrated that self-efficacy expectations are related to the nature and range of career options, academic achievement, persistence in academic majors, and career indecision.

Researchers have concluded that self-efficacy theory may be useful in understanding and modifying career-related behaviors (Betz & Hackett, 1981, 1986; Lent et al., 1986; Lent & Hackett, 1987). However, they also point to the need for further research investigating self-efficacy with regard to decision-making skills (Betz & Hackett, 1981), examining antecedents and consequences of career decision-making self-efficacy expectations (Taylor & Betz, 1983), and in general, clarifying the

explanatory and predictive potential of self-efficacy to the career domain (Lent & Hackett, 1987). Further, it has been suggested that given the behavioral specificity of self-efficacy expectations, they may be useful in the design of vocational interventions (Taylor & Betz, 1983). Taylor and Betz (1983) pointed to the need for studies examining the effectiveness of interventions designed to increase career decision-making self-efficacy expectations. Similarly, Betz and Hackett (1986) proposed that the most important test of career self-efficacy may come in studies investigating the effectiveness of theory-based interventions.

In accordance with these recommendations for research on self-efficacy, the present study examined a vocational intervention designed to impact both self-efficacy expectations and career indecision. The intervention was based on problem-solving strategies. This review now turns to a discussion of the relevant literature on problem solving.

Problem Solving

Problem solving has been described as a behavioral process which provides a number of alternatives for responding to a problematic situation (D'Zurilla & Goldfried, 1971; Goldfried & Davison, 1976). Problem solving usually occurs through a series of steps that include defining the problem, generating alternatives, evaluating the alternatives, and selecting the one best alternative to implement into action. D'Zurilla and Goldfried (1971) have proposed a five-stage model of problem-solving which coincides with the steps just described:

general orientation, problem definition and formulation, generation of alternatives, decision-making, and, verification.

Stages of Problem Solving

General Orientation. A general orientation to problem solving refers to the general attitude with which an individual approaches a problematic situation. That attitude, or problem-solving set, includes: (1) the recognition that problems are a normal part of life, (2) the assumption that it is possible to cope effectively with problems, (3) the readiness to identify problematic situations when they first occur and to label them as such, and (4) the willingness to inhibit the tendency to act impulsively (D'Zurilla & Goldfried, 1971; Goldfried & Davison, 1976; Goldfried & Goldfried, 1980; Heppner, 1978).

Problem definition and formulation. Given that many problem situations are ambiguous, it is important to make the problem as concrete as possible by defining the situation operationally. Any information and facts relevant to the problem situation should be delineated, including behaviors, feelings, and consequences of actions (Goldfried & Davison, 1976; Goldfried & Goldfried, 1980; Heppner, 1978). Once the problem has been clearly defined, alternative ways of responding to the problem can be generated.

Generation of alternatives. Generating a number of alternative ways of responding to the problem is at the core of problem solving (Goldfried & Davison, 1976). Brainstorming, a procedure developed by Osborn (1963), is considered an effective way of generating a list of

possible responses. The major principles behind brainstorming are to withhold adverse criticism or judgment of ideas until later, generate as many ideas as possible, regardless of how "wild" such ideas may appear, and to improve upon and combine these ideas to create other ideas (Goldfried & Davison, 1976; Goldfried & Goldfried, 1980; Heppner, 1978). It is expected that developing an extensive list of possible responses will increase the likelihood of producing an effective solution to the problem.

Decision making. In deciding upon one particular course of action, the "goodness" of alternatives is evaluated according to the probability that a given course of action will resolve the defined problem. In addition to selecting the strategy, (or general course of action), which is most likely to resolve the problem at hand, a tactic, (or specific way of implementing the strategy), must also be selected (Goldfried & Davison, 1976; Goldfried & Goldfried, 1980; Heppner, 1978).

Verification. After deciding upon a possible solution to the problem at hand, the final step in the problem-solving process is to implement the course of action, observe the consequences, and verify the effectiveness of that course of action in resolving the problem. If the problem has been resolved satisfactorily, the problem-solving process is completed. However, if the problem has not been resolved successfully, problem solving is continued in order to arrive at a different, more effective solution (Goldfried & Davison; Heppner, 1978).

Applications of the Problem-Solving Method

Problem solving is aimed at helping individuals learn strategies for coping with problems so that they can more effectively manage and control their lives (Goldfried & Goldfried, 1980). It follows that skills in problem solving would be useful in a variety of behaviors and situations. A number of authors (Gambrill, 1978; Goldfried & Davison, 1976; Goldfried & Goldfried, 1980) have delineated areas in which training in problem solving might be useful. Goldfried and Goldfried (1980) stated that problem solving may be useful in crisis situations (e.g. divorce, separation, death of a loved one) to help an individual think through what may appear to be an overwhelming situation. Gambrill (1978) advocated using problem-solving training to help depressed individuals who temporarily may be unable to make decisions. Goldfried and Davison (1976) suggested that problem-solving training may be useful with dependent clients who are unable to cope with problem situations alone.

Problem solving also has been considered to have potential utility in relapse prevention in individuals with addictive behaviors. In studies reviewed by Goldfried and Goldfried (1980), problem-solving training was used to help former addicts learn to cope more effectively with their environments without reverting to drug use (Copemann, 1973), and to help alcoholics learn more effective ways of coping with events (e.g. social pressure, negative emotional states) which usually lead to relapse (Chaney, O'Leary, & Marlatt, 1978). Similarly, Goldfried and

Goldfried (1980) concurred with Goldfried and Davison (1976) that problem-solving training may be useful in helping individuals who are about to be discharged from institutionalized settings (e.g. prisoners and psychiatric patients), learn to cope with noninstitutionalized environments.

The utility of problem solving also has been indicated in other interpersonal situations. Its use has been advocated in helping couples, families, adolescents, and children learn to resolve conflictual situations (Gambrill, 1978; Goldfried & Davison, 1976; Goldfried & Goldfried, 1980).

Problem-solving techniques seem especially useful for professionals who are concerned with helping individuals learn to resolve conflicts, function more independently, and cope more effectively with problems in their personal lives. Problem solving, therefore, is central to the counseling process since the goal of all approaches to counseling is to help clients cope more effectively with problems and concerns (Heppner & Krauskopf, 1987; Heppner, Reeder, & Larson, 1983). Problem solving may be especially applicable for professionals working with clients who have concerns about career decision making.

Problem solving and career decision making

Several authors have addressed the potential utility of problem solving in explaining and understanding different aspects of career decision making. Holland and Holland (1977) stated that the processes by which individuals make career decisions are related to problem

solving, while Heppner (1987) proposed that career planning activities (i.e. how people process information, make plans, and implement plans) may be affected by how individuals solve problems. Others (Larson & Heppner, 1985; Mendonca & Siess, 1976) also have suggested a relationship between vocational indecision and problem solving (e.g. that vocational indecision results from cognitive problem-solving operations).

In a review of the problem-solving literature and its relationship to counseling, Heppner (1978) noted that only a few studies explicitly attended to problem solving. In a more recent article, however, Sepich (1987) stated that vocational decision making and problem solving are receiving much research attention. Much of the research that exists on problem solving has examined differences between individuals who perceive themselves to be successful or unsuccessful problem solvers (Heppner, Hibel, Neal, Weinstein, & Rabinowitz, 1982; Heppner, Reeder, & Larson, 1983; Larson & Heppner, 1985; Nezu & Ronan, 1988). The results of such studies have characterized the self-appraised positive problem solver as: more motivated to solve problems, more systematic, persistent, and serious in their problem-solving efforts, less impulsive and avoidant in solving problems, more likely to perceive problems as a normal part of life, and more likely to use brainstorming techniques (Heppner et al., 1982). Additionally, the self-appraised effective problem solvers rated themselves as having more positive self-concepts, were less likely to be self-critical (Heppner et al., 1983) and reported

less depression when under high levels of stress than self-appraised ineffective problem-solvers (Nezu & Ronan, 1988).

To some extent, the vocational literature has drawn from and extended this line of research. In a study with 64 introductory psychology students who appraised their problem-solving skills positively versus negatively, Larson and Heppner (1985) examined the relationship between problem-solving self-appraisal (i.e. perception of one's problem solving abilities) and career decision and indecision. They found that self-perceived positive problem solvers reported more confidence in their decision-making ability and occupational potential, expressed more certainty of their vocational/educational choice, were less likely to view the source of indecision outside of themselves, perceived a greater relationship between their ability and occupational choice, and endorsed fewer reasons for being undecided than self-appraised negative problem solvers. Based upon these findings, Larson and Heppner (1985) suggested that there is a relationship between problem-solving appraisal and career decision making.

In an article designed to articulate further the role of problem-solving appraisal in the career planning process, Larson (1987) reviewed other studies which found a relationship between problem-solving appraisal and vocational identity (Heppner & Krieshok, 1983; Holland, Daiger, & Power, 1980; Larson & Ham, 1982). Based upon these reviews, Larson (1987) offered that how people appraise themselves affects how they behave, feel, and solve problems. Thus, how individuals appraise

their ability to solve career concerns could affect how they work through those problems. Since studies (Heppner et al., 1982; Heppner et al., 1983; Larson & Heppner, 1985) have shown a number of cognitive (e.g. more confident of their decision-making ability) and behavioral (e.g. less impulsive and avoidant in problem solving) differences between self-appraised positive and negative problem solvers, Larson (1987) concluded that self-appraised positive problem solvers may go through the career process in a "better" way--e.g. more confident, thorough, and persistent.

Larson et al. (1988) found further evidence of a relationship between problem solving and career indecision. In a study which examined multiple subtypes of career indecision, one subtype of undecided student, the planless avoiders, reported difficulties in career-related problem solving, perceived themselves as poor problem solvers, and had avoidant problem-solving attitudes and behaviors. Based upon this finding, Larson et al. (1988) observed that it may be useful to incorporate problem-solving variables into client assessments and counseling interventions.

Problem Solving and Vocational Interventions

Given the relevance of problem solving to career decision making in general and career indecision in particular, it follows that training in problem solving may prove effective in intervening with career undecided clients. Mendonca and Siess (1976) suggested that counseling for indecisiveness may involve correcting deficits in problem solving and

hypothesized that vocational indecision may result from cognitive problem-solving operations that are either lacking or inhibited by anxiety.

In a test of this hypothesis, Mendonca and Siess (1976) evaluated the efficacy of problem-solving and anxiety management training in helping clients deal with vocational indecision. Thirty-two undergraduates were assessed on vocational, anxiety-related, and problem-solving variables prior to being randomly assigned to one of three treatment groups and two controls: anxiety management, problem-solving training, a combination of anxiety management and problem-solving training, a discussion placebo, and no-treatment control. After seven one-hour sessions spread out over 18 days in their specified treatment groups, subjects were posttested on the vocational, anxiety, and problem-solving measures. The results indicated that problem-solving training alone led to improved performance on problem-solving tasks. However, problem-solving training in combination with training in anxiety management, led to greater gains in vocational exploratory behavior and problem-solving behavior than either method alone. Based upon these results, Mendonca and Siess (1976) concluded that both performance inhibited by anxiety and defective problem-solving skills were involved in vocational indecision for the students in this study.

Clarke and Greenberg (1986) also examined the impact of training in problem solving on reducing vocational indecision. They examined the differential effectiveness of an affectively oriented intervention and a

cognitive-behavioral intervention in helping individuals resolve a conflictual decision. Forty-eight volunteers who had been solicited from newspaper and radio advertisements and from posters and brochures placed in community centers and libraries, were assessed on measures of vocational indecision and stage of decision making. These subjects were randomly assigned to one of three treatment conditions: Gestalt two-chair, problem-solving training, and wait-list control. The subjects in the two training groups attended a briefing session in which the counseling approach to be used was described, and they attended two sessions in their respective treatment groups. One week after the counseling sessions, the subjects were retested on the career indecision measures. After posttesting, the wait-list control subjects received an unspecified treatment from practicum students. The results from this study indicated that the problem-solving intervention was more effective than no treatment in reducing indecision, but was less effective than the Gestalt two-chair intervention.

Thus, the combined results of these two intervention studies point to the potential usefulness of problem-solving training in reducing vocational indecision. It must be noted, however, that problem-solving training was less effective than two other treatment approaches in impacting vocational indecision. Despite the modest results from these two studies, the literature continues to emphasize the need to address problem solving prior to and concurrent with intervening with the vocationally undecided client. Larson and Heppner (1985) contended

that deficits in problem solving may impede career planning. Similarly, Sepich (1987) suggested that some undecided individuals may not benefit from career interventions until certain problems or problem-solving deficits are removed. Relatedly, Pinkney (1987) offered that effective career interventions can get sidetracked if a client is poorly prepared to engage in subsequent problem solving.

These assertions seem to point to the relevance of incorporating problem-solving training into vocational interventions and to the necessity of further research assessing the impact of problem-solving interventions on vocational indecision. Such was the aim of this proposed study.

Given the paucity of research on vocational problem-solving interventions, this review now provides a brief overview of the literature on vocational interventions in general.

Vocational Interventions

A vocational intervention is any treatment, program, or activity, designed to facilitate an individual's career development or enable that person to make better career decisions (Fretz, 1981; Spokane & Oliver, 1983). Vocational interventions may include group activities such as career courses, seminars, or workshops. They may also include individual counseling interviews or some self-administered treatment such as the reading of pamphlets and booklets, or the completion of interest inventories and interactive computer career guidance systems. Further, vocational interventions could be the interpretation of an

interest inventory, vocational decision-making training, a guided fantasy exercise, occupational games, or simply the presentation of occupational information (Holland, Magoon, & Spokane, 1981; Rounds & Tinsley, 1984; Sepich, 1987).

Vocational interventions are varied in type and may be administered in a number of ways. But, according to Holland et al., (1981), the ideal vocational intervention would include the following: (1) exposure to occupational information, (2) assessment materials and devices which will help clarify the individual's self-picture and vocational potential, (3) activities which will allow cognitive rehearsal of career plans, problems, and aspirations, (4) support or reinforcement from group/workshop members or a counselor, and (5) some cognitive structure which will allow the individual to organize information about her/himself and her or his occupational alternatives.

There is discrepancy concerning which type of vocational intervention is most effective. Holland et al. (1981) stated that the most recent vocational literature indicated that Ph.D. level career counselors are no more helpful than interest inventories. Fretz (1981) stated that group approaches are better than or equal to individual career counseling. Similarly, Spokane and Oliver (1983) suggested that group and class interventions are somewhat superior to individual and alternative strategies (e.g. pamphlets, booklets, self-administered inventories). More recently, however, Oliver and Spokane (1988)

contradicted these earlier assertions and offered that individual counseling, workshops, or structured groups, seem slightly superior to group interventions, except classes.

Although there is no consensus as to which type of vocational intervention is most effective, there does seem to be agreement that vocational interventions generally lead to positive results with career clients. Fretz (1981) stated that the evidence suggests that myriad, diverse interventions lead to small, yet consistently detectable gains. In a review of the vocational literature covering the period 1978 to 1979, Holland et al. (1981) concluded that divergent treatments usually have positive effects on clients. Based upon the results of an integrative analysis of 52 vocational intervention studies, Spokane and Oliver (1983) found that the outcome of the average client receiving any vocational treatment exceeded that of 80% of untreated controls. Thus, Spokane and Oliver (1983) concurred with Fretz (1981) and Holland et al. (1981) that almost any vocational intervention will have some effects.

Research

The research on vocational interventions, for the most part, has sought to answer two questions: (1) Are vocational interventions effective, and (2) Which method of service delivery is most effective (Rounds & Tinsley, 1984). The studies to be reviewed in this section will be organized according to their relevance to these two questions.

Are vocational interventions effective? The results of several reviews of vocational intervention studies indicated that vocational

interventions generally are effective (Fretz, 1981; Holland et al., 1981; Oliver & Spokane, 1983; Spokane & Oliver, 1988). Other studies, employing various techniques, have pointed to the efficacy of vocational interventions in impacting vocational indecision, career choice, and career maturity.

In a study by Evans and Rector (1976), 79 students participated in a course which was designed to assist them in career related decision making. The course included large group activities (e.g. discussing results of career assessments, reviewing occupational information), small group activities (i.e. meeting with a counselor on a weekly basis), and completion of independent assignments (e.g. taking career assessments, investigating one major). At the completion of the course, more than 70% of the participants reported being closer to selecting a major and occupation than they had been at the beginning of the course.

Similarly, Carver and Smart (1985) found that a college level career exploration and planning program was effective in increasing career choice certainty, career maturity, and utilization of career planing and counseling services.

Foss and Slaney (1986) reported that a videotape intervention was effective in increasing career decidedness and career decision-making self-efficacy in a sample of college women. Eighty women were exposed to a 30-minute videotape which covered topics such as female socialization and expectations, occupational dreams and realities, and women's views of themselves and other women. Prior to viewing the

videotape, the women completed a demographic data sheet, the Attitudes Toward Women Scale (Spence, Helmreich, & Stapp, 1973), and two measures of career self-efficacy. Two weeks later, subjects listed their current career choices, career choices for their hypothetical daughters, responded to an item concerning career decidedness, and retook the two measures of career self-efficacy. The results indicated that the women become more career decided over time, increased their scores in career decision-making self-efficacy, and chose more nontraditional careers for themselves and their hypothetical daughters.

Sepich (1987) reviewed a number of studies (Barak, Carney, & Archibald, 1975; McGowan, 1977; Pinder & Fitzgerald, 1984; Sampson & Stripling, 1979) which also demonstrated the effectiveness of various vocational interventions in impacting career indecision, career choice, and career decision-making. McGowan (1977) found that completing a self-administered assessment device, the Self-Directed Search, was effective in helping undecided individuals express a career choice. Sampson and Stripling (1979) reported that computer assisted guidance was deemed effective by students and became more effective when combined with counselor interventions. Similarly, Pinder and Fitzgerald (1984) found CHOICES, a computerized career guidance program, to be successful in improving career decision making.

Which intervention is most effective? A variety of vocational interventions have been shown to be effective in improving career decision-making and decreasing career indecision (e.g. career course,

videotape, computerized guidance program). The challenge for researchers and counselors has been to identify which method of intervening is most effective under a given set of circumstances.

Babcock and Kaufman (1976) found that a seven-week career course was more effective than individual career counseling and no-treatment (control group) in facilitating the vocational development of a group of college women. The women who participated in the career course showed greater gains in self-knowledge and relation of self-knowledge to occupations than the women who received individual counseling or no-treatment. Additionally, the women in the career course and in the individual counseling group reported greater gains in expressed occupational choice than those in the no-treatment group. Thus, Babcock and Kaufman suggested that career development programs include a group or class experience in addition to individual counseling.

Davis and Horne (1986) investigated the differential effectiveness of a career course and small-group career counseling on career decidedness and career maturity in college students. Subjects were assessed before and after treatment on measures of career indecision and career maturity. They were randomly assigned to either the career course, which met for 16 sessions, or to small-group counseling, which met for 12 sessions. The results of this study indicated that both treatments were equally effective in promoting career decidedness and career maturity. These findings support those of Babcock and

Kaufman (1976) who also found a career course to be effective in facilitating career choice.

Whereas Davis and Horne (1986) found small-group career counseling to be effective in facilitating career indecision and career maturity, Spokane and Oliver (1983), in their integrative analysis of vocational interventions, also reviewed two studies which examined the relative effectiveness of group vocational treatments. Hanson and Sander (1973) found no significant differences between individual or group treatment on career choice realism in high school students. Smith and Evans (1973), on the other hand, reported that a five-week structured group was more effective than individual counseling or no-treatment on vocational development stage.

Perovich and Mierzwa (1980) assessed three group treatments for their impact on self-esteem and vocational maturity. Seventy-two college juniors were tested before and after treatment on measures of self-esteem and career maturity and were randomly assigned to either a vocational information group (VIG), self-growth group (SGG), or a control group (CG). The VIG was provided vocational information covering topics such as career development, strategies for employment, decision-making skills, and occupational resources. The SGG was unstructured and focused on enhancing self-awareness. The CG was told that they would receive treatment after a two-month waiting period, at which time they were given the option of individual or group counseling. The findings indicated that there were no significant

differences between the VIG and the SGG on any measures, and that students in both of the treatment groups acquired more educational and occupational information than controls, and attained higher levels of vocational progress. Additionally, subjects in the vocational information group attained significant changes in self-esteem as compared to those in the control group. Thus, Perovich and Mierzwa concluded that it is possible to accelerate vocational maturity, to increase an individual's level of self esteem, and, in general, to meet the vocational needs of college students through a group activity.

The studies reviewed thus far in this section have examined the differential effectiveness of a career class, other group interventions, individual counseling, or no-treatment on various career-related behaviors. Other methods of vocational intervention also have been investigated for their relative impact on vocational indecision. Krivatsy and Magoon (1976) compared the differential effectiveness of two self-administered vocational treatments (i.e. Self-Directed Search, Individual Vocational Planning), traditional vocational counseling, and a control group of noncounseled students. Pretest and posttest scores were gathered on frequency and variety of vocational information seeking behaviors and other vocational outcome variables (e.g. time spent thinking about occupations, number of occupations being considered, vocational maturity, satisfaction with vocational plans). Additionally, costs of treatment were examined for all three treatment groups. The results indicated that all three treatments were equally effective and

pointed to the usefulness of self-administered treatments such as the Self-Directed Search. Similarly, Slaney and Lewis (1986) found that a Vocational Card Sort and the Strong Campbell Interest Inventory were equally effective in reducing vocational indecision in career-undecided re-entry women.

In a more recent study, Mitchell and Krumboltz (1987) compared a cognitive restructuring treatment and decision-making skills training for their effectiveness on a sample of career-undecided students. Cognitive restructuring was more effective than decision-making training or no-treatment control in decreasing anxiety about career decision making and increasing vocational exploratory behaviors.

Summary. The two questions which were the focus of this section were (1) Are vocational interventions effective, and (2) Which interventions are most effective? The evidence has clearly demonstrated that vocational interventions are effective in impacting a number of career-related behaviors: e.g. indecision, career choice, and career maturity. The answer to the second question, however, is not quite so clear. No one particular vocational intervention stands out as the most effective. A career course was shown to be more effective than individual career counseling (Babcock & Kaufman, 1976) but equally as effective as small-group career counseling (Davis & Horne, 1986). Group treatment has been shown to be more effective than individual counseling (Smith & Evans, 1973), but in another study, was found not to differ significantly in effectiveness from individual counseling (Hanson

& Sander, 1973). Self-administered vocational treatments were shown to be equally as effective as traditional vocational counseling (Krivatsy & Magoon, 1976).

The results of this review are consistent with conclusions from earlier reviews (Fretz, 1981; Holland et al., 1981; Spokane & Oliver, 1983)--that almost any vocational intervention will have some effects. Given that no one type of vocational intervention has been shown to be most effective, research needs to continue to address the impact of different vocational interventions on career indecision and other career-related variables. The challenge for researchers, however, is to draw from previous findings, try different approaches, and use improved research methodologies.

Methodological Considerations for Research on Vocational Interventions

Several recommendations have been offered for the improvement of vocational intervention research. Some of those suggestions are summarized below:

1. Use actual clients who have sought counseling for a career concern (Oliver & Spokane, 1988; Rounds & Tinsley, 1984; Spokane & Oliver, 1983).
2. Use a control group (e.g. no treatment control, wait list control) (Oliver, 1979; Spokane & Oliver, 1983).
3. Randomly assign subjects to treatment groups (Fretz, 1981; Oliver, 1979; Oliver & Spokane, 1988; Rounds & Tinsley, 1984; Spokane & Oliver, 1983).

4. Use assessment instruments from previous research (Fretz, 1981).
5. Use multiple outcome criteria (Oliver & Spokane, 1988; Rounds & Tinsley, 1984) or several dependent variables (Oliver, 1979).
6. Examine intercorrelations among variables (Spokane & Oliver, 1983).
7. Use short term assessment of outcomes; Conduct post-treatment assessment and follow-up within one to six months (Fretz, 1981; Oliver, 1979; Rounds & Tinsley, 1984).

Fretz (1981) offered further directions for facilitating the effectiveness of vocational interventions. For example, it was recommended that vocational interventions be described in terms of three treatment parameters: content (i.e. occupational information, self-knowledge, decision skills), interpersonal context (i.e. one-to-one counseling, group counseling, self- or computer administered), and degree of structure (i.e. highly structured, semi-structured, unstructured).

Fretz (1981) also suggested that subjects be described on all client attributes that may affect the outcomes of the intervention. Such client attributes include demographic variables (e.g. age, sex, race), psychological variables (e.g. self-confidence, anxiety, locus of control), and career-related variables (e.g. type of undecidedness, career maturity).

Further, Fretz (1981) pointed to the need to describe the outcome measures being evaluated along the following dimensions: career knowledge and skills (e.g. range and realism of choices), career behavior (e.g. career information seeking), sentiments (e.g. attitudes toward choices), and effective role functioning (e.g. self-concept adequacy). Fretz offered a number of other recommendations for vocational intervention research, but a discussion of them exceeds the scope of this review.

Summary

The studies reviewed in this section have indicated that a variety of vocational interventions are effective in impacting certain career-related variables. But, because there is a lack of consensus as to which vocational intervention is most effective, continued research on vocational interventions is warranted. A number of methodological considerations have been offered to guide this line of research.

Present Study in the Context of this Review

In addition to demonstrating a need for continued research on vocational interventions, this chapter has attempted to show a need for further research on vocational indecision, and self-efficacy and problem solving as they impact vocational indecision.

It has been suggested elsewhere in this chapter that there is a need to continue to assess those variables which may influence vocational indecision as a way of improving vocational interventions, facilitating career decision making, and reducing career indecision. It

was implied that both self-efficacy and problem solving have merit in explaining career indecision. Given the influence that these two variables may exert on career indecision, it follows that research needs to continue to assess their relevance in career decision making and incorporate them in intervention studies designed to decrease career indecision.

Bandura (1977) and Borders and Archadel (1987) both cautioned that any psychological intervention to change behavior must focus on strengthening an individual's self-efficacy expectations. More specifically, Rotberg et al. (1987) suggested that counselors may need to raise/change specific self-efficacy expectations in clients in order to get them to consider a wider range of careers. It seems then, that interventions to impact vocational indecision should focus also on changing self-efficacy expectations.

Bandura (1982) stated that "...people register notable increases in self-efficacy when...they gain new skills to manage threatening activities" (p. 125). One way of strengthening self-efficacy expectations in career-undecided clients may be to teach them new skills to manage career decision making. Mitchell and Krumboltz (1984) stated that it is assumed that individuals can be taught skills to promote good decision making. Extending this assumption to the career domain, it can be assumed that career-undecided individuals can be taught skills to promote effective career decision making. Problem solving may be an ideal strategy for teaching decision-making skills since it provides a

step-by-step approach that involves carefully defining a problem situation, generating alternative ways of working through the problem, evaluating those alternatives, and selecting the one alternative deemed best for resolving the situation.

Thus, intervening to improve career decision making, to reduce career indecision, and to increase self-efficacy expectations might involve training in problem solving. The aim of this study was to use a problem-solving approach to teach career-undecided individuals decision-making skills in an effort to impact their career indecision and self-efficacy for career decision making.

CHAPTER 3 METHODOLOGY

The purpose of this study was to investigate the impact on career decision-making self-efficacy and career indecision of teaching students decision-making skills using a problem-solving method. This study also examined the differential effectiveness of problem-solving training, in comparison with another vocational intervention, the Self-Directed Search, in impacting career indecision and career decision-making self-efficacy. Finally, this study examined the relationship between career decision-making self-efficacy and career indecision. The research questions, research design and variables of interest, sample, instruments, procedures, analyses of data, and limitations of the study are discussed in this chapter.

Research Questions

The specific questions addressed by this study included:

- (1) What is the relationship at baseline between career decision-making self-efficacy and career indecision?

Hypothesis: Students low in career decision-making self-efficacy will be more career undecided at baseline while students higher in career decision-making self-efficacy will be more career decided. That is, there will be a negative

correlation between decision-making self-efficacy and career indecision.

- (2) How does career indecision change as a result of the problem-solving intervention versus the Self-Directed Search intervention?

Hypothesis: Students receiving the interventions will be more career decided (i.e. less career undecided) after treatment (at posttest) than at baseline (pretest).

Students not receiving the interventions (controls) will not show significant changes in career indecision from pretest to posttest. Further, those receiving the problem-solving training will be more career decided at posttest than those receiving the Self-Directed Search or the control group.

- (3) How does career decision-making self-efficacy change as a result of the problem-solving intervention versus the Self-Directed Search?

Hypothesis: Students receiving the interventions will have higher scores on the Career Decision-Making Self-Efficacy Scale (CDMSES) at posttest (i.e. will have higher career decision-making self-efficacy) than before the interventions (pretest). Students not receiving the interventions (controls) will not show significant changes in career decision-making self-efficacy from pretest to post-test.

Further, those receiving the problem-solving training will show higher scores on the CDMSES at posttest than either the controls or those receiving the Self-Directed Search.

- (4) What is the relationship between career indecision and career decision-making self-efficacy at posttest?

Hypothesis: As students' career decision-making self-efficacy becomes higher, they will become more career decided (i.e. less undecided). That is, there will be a negative correlation between career indecision and career decision-making self-efficacy at posttest.

When this study was proposed initially, a fifth research question was included which addressed differences in intervention effects due to group (treatment, treatment-control, control), gender, and level in college (sophomore, junior). Classification was dropped because only sophomores were used in the study. Gender was omitted as a factor for analysis because it was expected that detecting differences due to gender would be difficult with such a small sample ($N = 33$). Differences in treatment effect due to group is addressed in research questions two and three. Thus, the fifth research question was dropped from consideration.

Research Design and Variables of Interest

This study was an experimental study which involved four phases and used a pretest - posttest control group design. The variables of interest in this present study were career decision-making self-efficacy and career indecision.

Career decision-making self-efficacy refers to beliefs that people hold about their ability to complete certain career decision-making tasks. In this study, career decision-making self-efficacy was operationalized as a score on the Career Decision-Making Self-Efficacy Scale (CDMSES) (Taylor & Betz, 1983).

Career indecision, or vocational indecision, as defined by Crites (1981), refers to an individual's inability to select and/or commit to a career direction. In this study career indecision was operationalized as a score on the Career Decision Scale (CDS) (Osipow, Carney, Winer, Yanico, & Koschir, 1976).

Sample

The sample for this study was drawn from college students at the University of North Carolina at Chapel Hill. These students were solicited from among the 388 sophomores in the university's General College who had not declared a college major during Fall semester 1989. Their names were provided to the principal investigator by the Dean of the General College. Additionally, volunteers were solicited from among sophomores in the subject pool of students in an introductory psychology course. Sophomores were targeted because it was expected that they were likely to be dealing with issues of deciding upon a major and career, whereas juniors and seniors were likely to have made those career decisions.

The participants who were solicited from the General College received no credit or pay for their participation in the study. Those who volunteered from the Psychology department received research credit toward their research participation requirement depending upon the level

of participation requested of them. The Psychology department subject pool coordinator allocated up to three hours of credit per subject for this study. Therefore, all subjects received one hour credit for participating in the pretest session, one hour credit for the posttest session, and one-half hour credit per workshop session that they attended.

Seventy sophomores from the University of North Carolina at Chapel Hill volunteered to participate in this study. Of those 70 volunteers, 40 volunteered in response to advertisements about the study which had been placed in various locations on campus, or in response to a letter which had been mailed to the 388 sophomores in the General College who had not declared a major by Fall semester 1989. Thirty volunteers were from the subject pool of students in an introductory psychology course and received research credit for their participation in the study.

Of the 70 volunteers, 45 completed pretest data. Between pretesting and the start of the interventions, five subjects dropped out, leaving 40 participants. By the time of posttesting, an additional seven students had dropped out, resulting in a final sample of 33 subjects. The analyses which are reported in Chapter 4 were completed on the 33 participants who completed the entire study.

The demographic characteristics of the students who participated in the study are shown in Table 3.1. The total group was comprised of 22 females (66.7%) and 11 males (33.3%). There were two black students (6%) and 31 white students (94%). All of the students were sophomores. Eleven of them (33.3%) were 19 years old and 22 (66.7%) were 20 years old.

Table 3.1

Frequencies and Percents for Gender, Race, and Age (Total Sample)

	<u>Frequency</u>	<u>Percent</u>
<u>Gender</u>		
Female	22	66.7
Male	11	33.3
<u>Race</u>		
Black	2	6.0
White	31	94.0
<u>Age</u>		
19	11	33.3
20	22	66.7

Instrumentation

Two instruments were used in this study: the Career Decision-Making Self-Efficacy Scale (Taylor & Betz, 1983) and the Career Decision Scale (Osipow, et al. 1976).

The Career Decision-Making Self-Efficacy Scales (CDMSES) is a 50-item inventory assessing an individual's confidence in his/her ability to successfully complete certain tasks required in making career decisions. Five subscales of 10 items each comprise the inventory: self-appraisal, occupational information, goal selection, planning, and problem solving. Each item is rated on a 10-point scale ranging from complete confidence (9) to no confidence (0). Subscale scores and a total confidence score can be obtained. The maximum subscale score is 90 while the maximum total score is 450. The internal consistency of the CDMSES is high with a reported coefficient alpha of .97. The subscale reliabilities range from .86 to .89 (Taylor & Betz, 1983).

The Career Decision Scale (CDS) is a 19 - item scale designed to measure career indecision. Responses are indicated on a 4 - point Likert-type scale ranging from "exactly like me" (4) to "not at all like me" (1). Items 1 and 2 form the certainty scale and reflect the extent to which an individual has definitely selected a career and major. The sum of these two items provides an index of vocational decidedness. The sum of items 3 - 18 (which form the indecision scale) provides an index of level of vocational indecision. Indecision scores may range from 16 to 64 with higher scores indicating greater degrees of vocational indecision. Test - retest reliabilities were .90 and .81 over a 2-week period (Osipow, Carney, & Barak, 1976).

To guide the level of appropriate intervention with clients, Osipow (1987) provided interpretative hypotheses (i. e. possible invalid profile, further need for assessment, high likelihood for need for intervention) for combinations of high, low, and middle range scores on the Career Decision Scale (CDS) certainty and indecision scales. Volunteers were included in this study if, using the interpretative hypotheses as a guide, their combined certainty and indecision scores indicated a need for further assessment or a high likelihood for need for intervention.

In this present study, the scores of two subjects indicated likelihood for need of intervention, and the scores of 30 subjects indicated a need for further assessment. One subject's scores indicated little felt need for intervention. But, Osipow (1987) suggested that close attention be paid to item 19, the open-ended question. On item 19, this student (the one whose scores reflected little felt need for intervention) expressed a need for help in clarifying options. Given that the student indicated a need for problem-solving and decision-making skills, she or he was included in the study.

Procedures

This study was conducted over four phases: subject recruitment, preassessment, intervention (problem-solving training and Self-Directed Search), and postassessment.

Phase I. Subject Recruitment

Subjects were solicited from the pool of sophomores in the General College at the University of North Carolina who had not declared a college major by Fall semester 1989. A list of students who had not

declared a major was obtained from the Dean of the General College. A letter (Appendix A) was mailed to these students and briefly described the purpose of the research (i. e. a study on career decision making), what was required of the participants, and potential benefits of the study to the researcher and to the participants. The letter included an information sheet (Appendix B) upon which each individual interested in participating in the study listed her/his name, address, and phone number so that the principal investigator was able to contact her/him to set up the specific date, time, and location of the first meeting.

In a further attempt to recruit from among the 388 sophomores in the General College who had not selected a major and who had not yet responded to the recruitment letter which was mailed to them, flyers describing the study were placed in key locations on campus (e. g. academic advising office, Career Planning and Placement office, student union, libraries), ads were placed in the student newspaper, and an announcement was run in the calendar section of the student newspaper. The flyers and advertisements invited sophomores who were undecided about their major or career to volunteer for a research study on career decision making. The name, phone number, and campus address (i. e. University Counseling Center) of the principal investigator was placed on these advertisements. A message was included on the flyer instructing individuals interested in volunteering for the study to contact the principal investigator at the phone number listed. No incentives were offered in these announcements.

Additionally, subjects were solicited from sophomores in the subject pool of students in an introductory psychology course. These

students received research credit depending upon their level of participation. The research project was described on flyers (Appendix C) which were posted in a designated area of the Psychology building along with flyers describing other research projects. The flyer briefly mentioned the purpose of the project (i.e. study on career decision making for sophomores who had not selected a major), what was required of participants, and the date, time, and location of the first meeting. Spaces were left blank on which individuals interested in participating in the study signed their names and telephone numbers. The principal investigator placed a follow-up call to participants to remind them of their session.

Phase II. Preassessment

Those subjects agreeing to participate in the study attended a group meeting, which was held at the University Counseling Center, in which they completed the assessments. Six different meeting times were arranged to accomodate the different schedules of students, with the expectation that students would be tested in small groups. The principal investigator conducted all of the preassessment sessions. Subjects were told that the study was designed to investigate the factors that influence career decision making in college students.

The students were informed that based upon the results of the questionnaires which they were about to complete, one group of them (the problem-solving training group) would be asked to (a) participate in a two-session, one hour per session, workshop on career decision making and (b) complete a second set of inventories in approximately three to four weeks. They also were told that a second group of participants

(the Self-Directed Search, treatment-control group) would complete a career interest inventory to help them clarify their interests, skills, and values. This group of participants would have an individual follow-up session to discuss the interest inventory, and also would be asked to complete a second set of inventories in approximately three to four weeks. Finally, the subjects were told that a third group of participants (wait-list control) would be asked to complete a second set of inventories in three to four weeks. At that time, they would be given their choice of participating in the two-session workshop on career decision making or completing the career interest inventory to help them clarify their work-related interests, skills, and values.

When this study originally was proposed, there were plans were to offer a one-session seminar on preparing for career success at the end of the study for participants who were career decided at pretest. However, only career undecided individuals were recruited, thus eliminating the need to offer this seminar.

The subjects were informed that individual data would be massed into group data for analysis and that there would be no individual interpretations of the tests that they were about to complete. However, they were told that the researcher would be available at the completion of the study at dates and times to be specified to discuss with them any general questions that they may have about the tests. It was explained to them that their names should not be placed on the inventories, that their test results would remain confidential, and that they could terminate their participation in the study at any time.

At this point, the informed consent forms were distributed. The students signed two copies of the consent form. One copy was returned to the principal investigator and the second copy was kept by the students. The subjects then were given a packet containing a demographic data sheet (race, sex, age, their student identification number), the Career Decision Scale, and the Career Decision-Making Self-Efficacy Scale. They were told that after completing the questionnaires, they could leave the experiment. No time limits were set, but all students completed the instruments within 30 minutes. The researcher remained in the room in order to answer any questions.

Phase III. Interventions: Problem-Solving Training and Self-Directed Search

Forty-five subjects completed the pretest questionnaires and then were randomly assigned to either the Problem-Solving Training (PST) group ($n = 15$), the Self-Directed Search (SDS) group ($n = 15$), or the wait-list control group ($n = 15$). However, between pretesting and the start of the intervention, five subjects dropped out leaving 40 participants (PST, $n = 11$; SDS, $n = 14$; control, $n = 15$). By the time of posttesting, only 33 subjects remained. They were equally distributed in the three groups. The demographic characteristics of the students in the study by group are listed in Table 3.2.

Those subjects assigned to the PST or SDS groups comprised the intervention groups.

Problem-solving training. The problem-solving training involved providing a brief overview of the process of career decision making followed by in-depth training in decision-making skills using the

Table 3.2

Characteristics of Students in Study by Group

	Group 1		Group 2		Group 3		Totals
	<u>PST</u>		<u>SDS</u>		<u>Control</u>		
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	
<u>Gender</u>							
Female	7	64.0	8	73.0	7	64.0	22
Male	4	36.0	3	27.0	4	36.0	11
<u>Race</u>							
Black	0	0.0	1	9.0	1	9.0	2
White	11	100.0	10	91.0	10	91.0	31
<u>Age</u>							
19	6	55.0	3	27.0	2	18.0	11
20	5	45.0	8	73.0	9	82.0	22

Note.

PST= Problem-Solving Training Group
 SDS= Self-Directed Search

problem-solving method described by Goldfried and Davision (1976). The purpose of the intervention was to teach students to use problem-solving strategies so that they might increase the range of career choices open to them, evaluate the appropriateness of those choices, and then decide which career choice best fits their interests, skills, values, and goals.

Training was conducted by the principal investigator, who was an advanced doctoral student in counseling psychology and also was a counselor at the University Counseling Center at the University of North Carolina. The training involved modeling, roleplaying, didactic instruction, handouts, group discussion, and practice working through problem situations in small groups (dyads and triads). Feedback and positive reinforcement were given to help students grasp and successively approximate the steps in the problem solving model.

The first workshop session focused on presenting the concept of and steps in problem solving and provided opportunity for practice. Students were given a homework assignment in which they were asked to apply the method to some naturally occurring problem in their lives. They also were asked to attempt to apply the method to their specific career-related difficulties. The second session took place one week later, and was devoted to discussion of individual career decision-making difficulties and practice in applying the method to career-related concerns.

The participants were asked to not discuss the contents of the sessions with others and to not share materials distributed in the workshops until after having completed the second set of assessments.

The content of each session was as follows:

Session I. (1 hour)

1. Brief overview of the process of career decision making (5 minutes)
Gave handout.
2. Rationale for focus of workshop (5 minutes)
Problem solving is a way to master the process of career decision making.
3. Steps in Problem Solving (10 minutes)
Gave handout on these steps. Discussed a general problem and how to apply the problem-solving model to the problem.
4. Practice (15 minutes)
Facilitator presented career-related problem, and modeled using problem-solving model to work through that problem.
Sought group input.
5. Group Discussion (5 - 10 minutes)
Discussed typical difficulties in career decision making.
Gave handout on these difficulties (Appendix M). Related problem solving to career decision making.
6. Practiced in small groups. (15 minutes)
Used problem-solving model to work through two career-related problems posed by the facilitator.
7. Explained homework assignment. (5 minutes)

Session II. (1 hour)

1. Reviewed last session. Quizzed group verbally on steps in problem solving. (5 minutes)
2. Reviewed homework (5 - 10 minutes)
3. Practiced in small groups (30 - 35 minutes)

All practice focused on participants' career concerns.

4. Processed the small group role plays (10 minutes)
5. Summary/Review/Future Directions (5 minutes)

A detailed description of each session is included in the appendices (See Appendices H - M).

Self-Directed Search intervention. A second treatment group was added so that the differential effectiveness of problem-solving training in reducing vocational indecision and increasing career decision-making self-efficacy could be examined. Participants in this treatment control group completed Holland's (1985a) Self-Directed Search: A Guide for Educational and Vocational Planning.

The Self-Directed Search (SDS) is a self-administered, self-scored, and self-interpreted vocational interest inventory which helps individuals clarify occupational preferences and aspirations, perceived abilities and competencies, and matches this information with different occupations. It is based on Holland's theory of vocational choice, personality types, and work environments, which states that most people can be categorized as one of six personality types--realistic, investigative, artistic, social, enterprising, or conventional. Further, according to Holland's theory, there are six kinds of work

environments which correspond to each of the personality types (Holland 1985b). The SDS estimates the extent to which an individual resembles each of the personality types, and indicates the kind of work environment in which an individual is likely to be most satisfied and successful.

After completing the SDS assessment booklet and scoring their self-reported responses, respondents arrive at a three-letter occupational code which indicates the three personality types which they resemble most. Individuals may use this three-letter code to locate potential occupations in the Occupations Finder, a file of 1,156 occupations which accompanies the SDS assessment booklet (Holland, 1985c).

Although the SDS is often taken in private, Holland (1985b) stated that it has been used successfully in small groups of 15 to 25 people. The SDS also is constructed to allow for limited self-interpretation but may be interpreted in individual and group counseling. Accordingly, Holland (1985b) suggested basic strategies to be used to help career clients cope with vocational indecision (e. g. provide information on vocational development and occupations, provide materials about decision making, job hunting, and employment outlook, and encourage exploration of alternatives).

In this present study, subjects completed the SDS in a group setting, but worked individually and independently. They were told that they could take as long as necessary to complete the inventory (i. e. no time constraints were imposed). After completing the SDS, participants scheduled a one-hour individual follow-up session with the principal investigator to be held one week later. This follow-up session

incorporated the strategies suggested by Holland (1985b) for working with vocationally undecided clients who had completed the SDS.

The format of these individual sessions was as follows:

1. Participants were given the opportunity to discuss their occupational options and possible majors as indicated by the SDS.
2. Participants were given a handout (see Appendix N) describing Holland's personality types to help them understand and clarify their three-letter code.
3. Participants were given a handout on the Process of Career Decision Making (see Appendix I).
4. Participants were given a tour of the University Counseling Center's Career Resource Room and were shown how to use various career resources (e.g. Occupational Outlook Handbook, Dictionary of Occupational Titles).

At the end of this follow-up session, subjects were reminded that they would be asked to complete a second set of questionnaires in approximately two weeks.

Phase IV. Postassessment

After the interventions were completed, all subjects were sent letters reminding them of the date, time, and location (University Counseling Center) of the second assessment (which was held two weeks after the last session of the interventions). At this time, they again were given a packet containing a demographic data sheet, the CDS, and the CDMSES. Those individuals from the wait-list control group were asked to indicate on a sign-up sheet which intervention they wanted to

receive (i. e. problem-solving training, or the SDS). The principal investigator contacted them within a week to schedule the next meetings.

CHAPTER 4

RESULTS

This chapter is organized into four sections. Preliminary analyses of the data are provided in the first section. Section two presents the results of testing the four main research questions which guided this study. Supplemental analyses of the data are presented in section three. Finally, the findings of this study are summarized in the fourth section.

Preliminary Analyses of Data

Because subjects for this study were drawn from different populations (i.e. General College and Psychology Subject Pool), independent samples t tests were performed to determine if there were initial differences in subjects' mean scores on career indecision or career decision-making self-efficacy based upon the population from which they were drawn.

Table 4.1 shows the pretest and posttest means of the subjects on the dependent variables by the population from which they were drawn and shows that the means were similar on all variables. The results from the t tests are described in Table 4.2 and indicate that there were no significant differences between General College (those subjects who responded to letters, flyers, or newspaper advertisements) or Psychology subject pool subjects on either career indecision or career decision-making self-efficacy at pretest or posttest. Thus, it may be assumed

Table 4.1

Means and Standard Deviations for Dependent Variables by Sample Source

<u>Condition</u>	<u>Variable</u>	<u>N</u>	<u>Pretest</u>		<u>Posttest</u>	
			<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
General College	CDS1	16	3.125	1.204	5.38	1.632
	CDS2	16	34.563	5.125	33.313	7.674
	SES5	16	59.813	11.356	65.750	12.321
	SEST	16	287.750	50.832	334.250	61.791
Psychology Subject Pool	CDS1	17	5.412	1.176	6.294	1.312
	CDS2	17	36.294	8.823	31.588	8.008
	SES5	17	60.706	15.687	67.235	12.892
	SEST	17	317.176	54.629	361.176	48.812

Note.

CDS1	Career Decision Scale Certainty Subscale
CDS2	Career Decision Scale Indecision Subscale
SES5	Career Decision-Making Self-Efficacy Problem-Solving Subscale
SEST	Career Decision-Making Self-Efficacy Scale Total Score

Table 4.2

Comparison of General College and Psychology Subject Pool Subjects
on Career Decision Scale and Career Decision-Making Self-Efficacy Scale
Scores Assessed by Studentized t

Variable	<u>Condition</u>				DF	t	p
	<u>General College</u>		<u>Psychology Subject Pool</u>				
	<u>(n=16)</u>		<u>(n=17)</u>				
	M	S. D.	M	S. D.			
PRCDS2	34.5625	5.125	36.2941	8.823	31	-0.68	0.499
PRSES5	59.8125	11.356	60.7059	15.687	31	-0.19	0.853
PRSEST	287.7500	50.832	317.1765	54.629	31	-1.60	0.120
PSCDS2	33.3125	7.674	31.5882	8.008	31	-0.63	0.533
PSSES5	65.7500	12.321	67.2353	12.892	31	-0.34	0.737
PSSEST	334.2500	61.791	361.1765	48.812	31	-1.39	0.173

Note.

PRCDS2 Pretest, CDS Indecision Subscale
 PRSES5 Pretest, CDMSES Problem-Solving Subscale (5)
 PRSEST Pretest, CDMSES Total Scale
 PSCDS2 Posttest, CDS Indecision Subscale
 PSSES5 Posttest, CDMSES Problem-Solving Subscale (5)
 PSSEST Posttest, CDMSES Total Scale

that any differences (or lack thereof) found in subsequent analyses may not be attributed to the fact that subjects were drawn from different populations.

The descriptive statistics (i.e. means, standard deviations) for the dependent variables at pretest and posttest by group and for the entire sample are shown in Table 4.3 and demonstrate that all of the sample means changed in the desired direction. Mean scores for the entire sample on the CDS certainty scale (CDS1, items 1 and 2) increased toward higher certainty of choice from a pretest mean of 4.303 to a posttest mean of 5.879. Mean scores for the entire sample on the CDS indecision subscale (CDS2, items 3-18) decreased from mean of 35.455 at pretest to mean of 32.424 at posttest. High scores on this scale indicate greater indecision, and thus scores changed in the direction of lower indecision. Similarly, mean scores on the CDS indecision scale (CDS2) decreased toward lower career indecision (i.e. greater decidedness) for all groups. (Unless otherwise indicated, all analyses reported for the CDS scale will be with the indecision subscale, denoted on the tables as CDS2).

The CDMSES mean scores increased toward higher self-efficacy for career decision-making tasks. High scores on the CDMSES indicate greater self-efficacy for career decision-making tasks. The CDMSES total scores for the entire sample increased from a pretest mean of 302.909 to a posttest mean of 348.121. This pattern was evident in the mean changes of CDMSES total scores for the experimental and control groups. The mean total scores for these groups also changed in the direction of increased career decision-making self-efficacy.

Table 4.3

Means and Standard Deviations for Dependent Variables

Condition	Variable	N	Pretest		Posttest	
			M	S. D.	M	S. D.
PST	CDS1	11	3.636	1.567	5.455	1.753
	CDS2	11	36.364	7.131	32.909	5.108
	SES5	11	57.454	9.751	68.090	6.877
	SEST	11	287.909	35.720	355.909	40.126
SDS	CDS1	11	4.545	1.916	6.091	1.300
	CDS2	11	33.545	8.311	30.818	8.159
	SES5	11	58.363	19.335	66.454	17.247
	SEST	11	308.273	75.107	354.363	77.953
Control	CDS1	11	4.727	1.348	6.091	1.514
	CDS2	11	36.455	6.363	33.545	9.812
	SES5	11	65.000	9.033	65.00	12.058
	SEST	11	312.545	45.456	334.091	46.088
Entire Sample	CDS1	33	4.303	1.649	5.879	1.516
	CDS2	33	35.455	7.211	32.424	7.774
	SES5	33	60.273	13.554	66.515	12.443
	SEST	33	302.909	54.096	348.121	56.283

Table 4.3--continued

Condition	Variable	N	Pretest		Posttest	
			M	S. D.	M	S. D.
Standardi- zation Group	CDS1	110	5.84	1.42		
	CDS2	110	28.75	8.09		
	SES5	346	64.60	11.30		
	SEST	346	337.70	51.80		

Note.

CDS1	CDS Certainty Subscale
CDS2	CDS Indecision Subscale
SES5	CDMSES Problem Solving Subscale
SEST	CDMSES Total Scale
PST	Problem-Solving Training Group
SDS	Self-Directed Search Group

Means and standard deviations also are included in Table 4.3 for the groups on which the CDS and CDMSES were normed. The normative data presented in Table 4.3 for the CDS is based on a sample of 110 college sophomores. Although Osipow (1987) provides separate normative data for each college grade level, only that for sophomores is included in Table 4.3 because all of the subjects used in this present study were sophomores. The normative data provided in Table 4.3 for the CDMSES is based on a sample of 346 college students, of which 79% were freshmen, 16% were sophomores, and 5% were juniors and seniors (Taylor & Betz, 1983). Taylor and Betz (1983) did not report means and standard deviations separately by grade level, and thus normative data for sophomores alone is not presented in Table 4.3.

The data presented in Table 4.3 indicates that the entire sample means for the subjects used in this study were similar at pretest to those of the normative group for the CDS certainty scale (4.303 vs. 5.84), the CDS indecision scale (35.455 vs. 28.75), and the CDMSES problem-solving scale (60.273 vs. 64.60). However, the pretest mean for the CDMSES total scores for the entire sample of subjects in this present study was lower than that of the normative group (302.909 vs. 337.70).

Test of Research Questions

This study sought to answer four main research questions and related hypotheses.

The first research question addressed the relationship at baseline between career decision-making self-efficacy and career indecision. It was hypothesized that there would be a negative correlation between

career decision-making self-efficacy and career indecision. A Pearson product-moment correlation between total scores on the CDMSES and indecision scale scores on the CDS was calculated to test this hypothesis. As hypothesized, there was a significant negative correlation ($r = -.32$, $p < .05$) between career decision-making self-efficacy and career indecision at pretest. This correlation was low and reflected a weak relationship between the two variables prior to intervention.

A bivariate regression also was performed to determine how well career decision-making self-efficacy would predict career indecision. Career decision-making self-efficacy approached significance at the .05 level ($p = .065$) as a predictor of career indecision at pretest. The multiple R was 0.324, $R^2 = 0.105$, and thus, career decision-making self-efficacy accounted for only 10.5% of the variance in career indecision at pretest.

Examination of the bivariate regression scatterplot revealed one outlier. This person was located because of her or his unusually low scores on the CDMSES (pretest score = 155, whereas sample mean at pretest = 302; posttest score = 197, whereas sample mean at posttest = 348) and was removed from the analyses. As a result of removing the outlier from analyses, the bivariate regression became significant ($p < .05$, $R^2 = 0.14$) but no changes occurred in the other analyses (e.g. Pearson correlations remained significant, MANOVA full model tests for between groups differences, which will be discussed later in this chapter, remained nonsignificant). Thus, all analyses in this research included the outlier ($N = 33$).

The second and third research questions sought to determine how career indecision and career decision-making self-efficacy would change from pretest to posttest as a result of the interventions. As a preliminary test of these questions, two separate one-way analyses of variance (ANOVAs) were performed on pretest CDS indecision scores and CDMSES total scores to determine if the three treatment groups differed with regard to these scores at baseline. Table 4.4 presents a summary of the ANOVA on pretest CDS scores and shows that there were no significant differences among the groups in career indecision at baseline ($F(2) = 0.563$, $p = .576$). Similarly, results of the ANOVA on pretest CDMSES scores revealed that there were no significant differences among the groups in career decision-making self-efficacy prior to treatment ($F(2) = 0.637$, $p = .536$). These results are summarized in Table 4.5.

Given that there were no significant group differences in career indecision or in career decision-making self-efficacy prior to the interventions, a 3 (group) x 2 (time) multivariate analysis of variance (MANOVA) with repeated measures (doubly multivariate repeated measures design in SPSS) was performed to determine if there were any significant changes in career indecision and career decision-making self-efficacy from pretest to posttest and to determine any significant group differences in these changes (research questions 2 and 3). The dependent variables were CDS scores (pretest and posttest) and CDMSES scores (pretest and posttest). The independent variables were group (PST, SDS, and control), time (pretest, posttest), and group x time.

Table 4.4

Analysis of Variance of Pretest Career Decision Scale Scores

Source	DF	SS	MS	F	Pr> F
Group	2	60.182	30.091	0.563	0.576

Table 4.5

Analysis of Variance for Pretest Career Decision-Making Self-Efficacy Scale Total Scores

Source	DF	SS	MS	F	Pr> F
Group	2	3812.909	1906.455	0.637	0.536

Follow-up univariate ANOVAs were performed to investigate any significant main or interaction effects.

It was hypothesized that students receiving the treatments (PST and SDS) would be more career decided (i. e. less undecided) and would have higher career decision-making self-efficacy after treatment than at pretest. Additionally, it was hypothesized that students in the PST group would be more career decided and would have higher scores on the CDMSES at posttest than either those in the SDS group or those in the control group. Using Wilk's criterion, the overall multivariate analysis revealed that there was a significant group x time interaction ($F(4, 58) = 2.53, p \leq .05$) as well as a significant main effect for time ($F(2, 29) = 29.33, p \leq .00$). Examination of the follow-up univariate F-tests revealed a significant group x time interaction effect for the CDMSES scores ($F(2, 30) = 5.34, p \leq .01$), but not for the CDS scores ($F(2, 30) = .033, p = .967$).

Follow-up (post-hoc) contrasts indicated that the significant differences in changes in CDMSES scores were between the PST group and the no-treatment control group ($F(1) = 10.67, p < .017$). (A significance level of $p < .017$ is required to hold the overall significance level at .05 using Bonferonni's correction, which is a means of protecting the alpha level from inflation due to multiple tests). There were no significant differences between the PST group and the SDS group ($F(1) = 2.37, p = .13$) or between the SDS group and the no-treatment control group ($F(1) = 2.98, p = .0947$). Thus, the hypothesis

that the PST group would show higher scores on the CDMSES at posttest than either the SDS or no-treatment control groups was partially supported.

The graph of the CDMSES scores across group and time is presented in Figure 4.1. The graph of the interaction indicates that the PST group improved more in career decision-making self-efficacy across time (i. e. from pretest to posttest) than either the SDS group or the control group. However, as indicated in the follow-up contrasts, although the PST group improved more in career decision-making self-efficacy than the SDS group, this difference was not statistically significant. The mean change for the PST group was 68 (pretest mean = 287.909, posttest mean = 355.909); the mean change for the SDS group was 46.091 (pretest mean = 308.273, posttest mean = 354.363); and the mean change for the control group was 21.546 (pretest mean = 312.545, posttest mean = 334.091). (A list of the means and standard deviations for the dependent variables by group are presented are table 4.3). Because the univariate F-test for the interaction effect in CDS scores was not significant, no graph of that interaction is presented.

As was stated earlier, in addition to the significant group x time interaction effect, there was a significant main effect for time. Examination of the univariate analyses revealed a significant time effect for CDMSES scores ($F(1, 30) = 60.61, p \leq .00$) and a significant time effect for the CDS scores ($F(1, 30) = 6.41, p \leq .03$). However, there was not a significant group or group x time interaction effect for the CDS scores. Thus, the PST group (treatment group), the SDS group (treatment control group), and the no-treatment control groups all

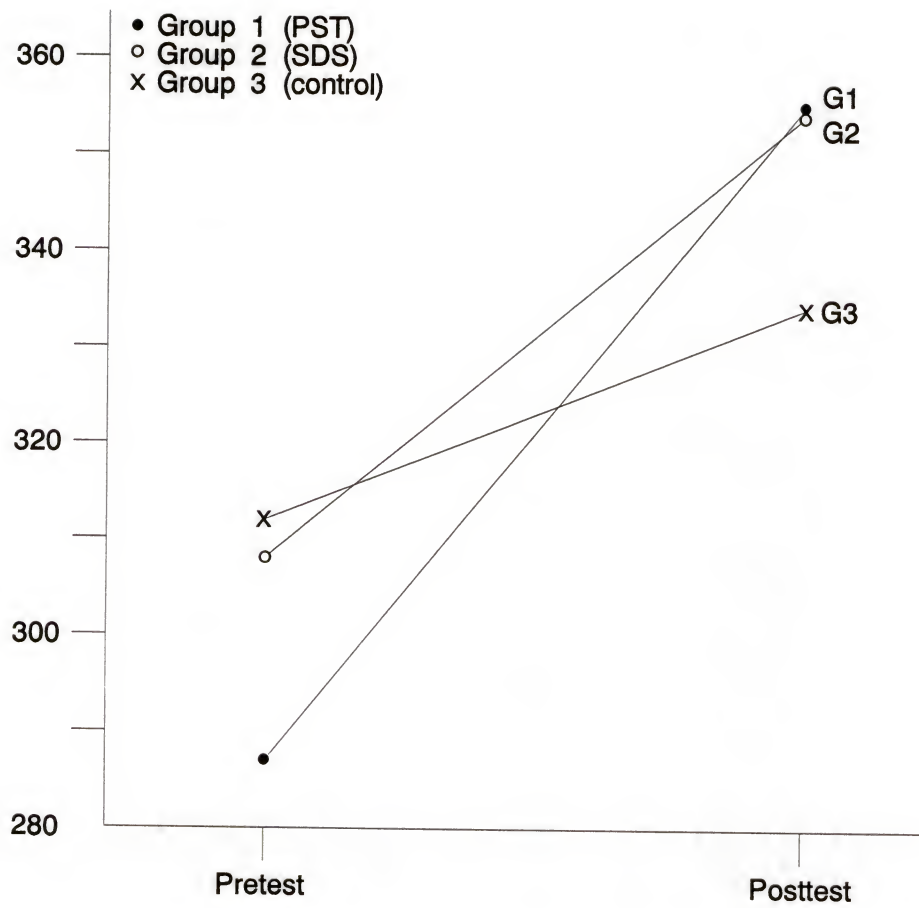


Figure 4.1 Mean Career Decision-Making Self-Efficacy Scores for Problem-Solving Training, Self-Directed Search, and Control Groups Across Time

showed significantly higher CDS scores from pretest to posttest. The hypothesis that students receiving the interventions (PST and SDS groups) would show significant changes in career indecision from pretest to posttest was supported. However, the hypothesis that the students receiving the PST would change significantly more in level of career indecision than either the SDS or no-treatment control groups was not supported. Similarly, the hypothesis that subjects in the control group would not show significant changes in career indecision from pretest to posttest was not supported.

The fourth research question addressed the relationship between career decision-making self-efficacy and career indecision at posttest. It was hypothesized that there would be a negative correlation between career indecision and career decision-making self-efficacy at posttest. This hypothesis was analyzed using a Pearson product-moment correlation and a bivariate regression. As hypothesized, there was a significant negative correlation between career decision-making self-efficacy and career indecision at posttest ($r = -.77$, $p < .00$). This correlation was considerably stronger than at pretest ($r = -.32$) indicating a much stronger relationship between career decision-making self-efficacy and career indecision at posttest.

The results of the bivariate regression revealed that career decision-making self-efficacy was a significant predictor of career indecision at posttest $F(1,31) = 45.71$, $p < .00$. The multiple R was 0.772 , $R^2 = 0.595$, and thus, career decision-making self-efficacy accounted for 59.5% of the variance in career indecision at posttest.

At pretest, career decision-making self-efficacy accounted for only 10.5% of the variance in career indecision.

Additional Post-Hoc Analyses

Subscale five of the CDMSES (denoted hereafter and on tables as SES5) measures confidence in problem-solving abilities for career decision-making tasks. Given that the main focus of this study was on the impact of problem-solving training on career indecision and career decision-making self-efficacy, additional analyses were performed on the problem-solving subscale, SES5, to assess changes in self-efficacy for problem-solving.

It was shown in Table 4.1 that the pretest and posttest means on the problem-solving subscale (SES5) were similar for students coming from the General College and for those coming from the Psychology subject pool. The pretest mean on SES5 for subjects from the General College was 59.813 with a standard deviation of 11.356, and that for Psychology subject pool students was 60.706 with a standard deviation of 15.687. Posttest means were 65.750 (standard deviation= 12.321) for the General College students and 67.235 (standard deviation= 12.892) for Psychology subject pool students.

The results from independent samples t tests demonstrated that there were no significant differences between General College or Psychology subject pool students on problem-solving self-efficacy at pretest ($t(31) = -.19$, $p = .853$) or at posttest ($t(31) = -.34$, $p = .737$) (see Table 4.2). Thus, any differences found in problem-solving self-efficacy may not be due to the fact that subjects came from different populations.

An examination of mean changes on SES5 (see Table 4.3) reveals that, as with CDMSES total scores, movement generally was in the direction of increased self-efficacy for problem solving. Mean problem-solving self-efficacy scores increased from pretest to posttest for both the PST group (pretest \bar{m} = 57.454, posttest \bar{m} = 68.090) and SDS group (pretest \bar{m} = 58.363, posttest \bar{m} = 66.454). The control group mean score on problem-solving self-efficacy remained stable at mean of 65.00 from pretest to posttest.

It also was important to determine how problem-solving self-efficacy changed as a result of the interventions, and thus, dependent samples *t* tests were performed. The results of the *t* tests are summarized in Table 4.6 and reveal a significant effect for problem-solving self-efficacy for the PST group ($t(10) = -3.38, p < .005$). Given that students in this group received training in problem-solving strategies, it was expected that their scores on the problem-solving subscale would increase significantly from pretest to posttest.

The *t* tests results shown in Table 4.6 also reveal a significant difference on the problem-solving self-efficacy subscale at posttest for students in the SDS group ($t(10) = -2.33, p < .05$). Thus, although these students were not exposed to training in problem-solving, their self-efficacy for problem-solving in career decision-making tasks increased significantly after being pretested and completing the SDS.

There were no significant differences in problem-solving self-efficacy from pretest to posttest for students in the control group ($t(10) = .00, p = 1.0$). As was indicated earlier, their mean problem-solving self-efficacy scale scores remained stable across time.

Table 4.6

T test for Pretest and Posttest Problem-Solving Self-Efficacy by Group

Group	N	<u>Pre-SES5</u>		<u>Post-SES5</u>		t	p
		M	S. D.	M	S. D.		
PST	11	57.45	9.751	68.09	6.887	-3.38	.0035*
SDS	11	58.36	19.335	66.45	17.247	-2.33	.042 **
Control	11	65.00	9.033	65.00	12.058	0.00	1.0

Note.

*p < .005

**p < .05

PST= Problem-Solving Training Group

SDS= Self-Directed Search Group

Thus, the results indicate that both vocational interventions impacted problem-solving self-efficacy.

Summary of Findings

The main focus of this study was to investigate the effects of teaching students problem-solving strategies, versus use of the Self-Directed Search, on their career decision-making self-efficacy and career indecision. Secondly, this study examined the relationship between career decision-making self-efficacy and career indecision.

Results indicated that there was a significant negative correlation between career decision-making self-efficacy and career indecision. Additionally, at posttest, career decision-making self-efficacy proved to be a stronger predictor of career indecision and accounted for a significantly larger percent of the variance in career indecision than it had at pretest.

Results from this study also indicated that career indecision and career decision-making self-efficacy changed significantly from pretest to posttest with students becoming less career undecided, more confident in their abilities to complete career decision-making tasks, and more confident in their problem-solving abilities. Students became less career undecided regardless of which treatment they received (PST or SDS), and regardless of whether or not they received treatment. Although there were no significant differences between the groups in changes in career indecision, the groups did show significant differences in their increases in career decision-making self-efficacy from pretest to posttest. The students in the problem-solving training group showed significantly greater increases in career decision-making

self-efficacy than students in the no-treatment control group. There were no statistically significant differences in level of change in career decision-making self-efficacy between the PST group and the SDS group, or between the SDS group and the no-treatment control group.

Additional post-hoc analyses indicated that students in the PST and SDS groups also increased significantly in problem-solving self-efficacy from pretest to posttest. Students in the no-treatment control group showed no significant increases in problem-solving self-efficacy.

CHAPTER 5

DISCUSSION

This study was based on the premise that it is important to (a) identify the variables which may be associated with career indecision, (b) design and implement vocational interventions around those variables, and (c) assess the impact of those vocational interventions on career indecision. Given that self-efficacy and problem solving are two variables which have received attention for their potential utility in explaining career indecision (Larson & Heppner, 1985; Mitchell & Krumboltz, 1984), the purpose of this study was to investigate the effects on career decision-making self-efficacy and career indecision of teaching students decision-making skills using a problem-solving method. This study also examined the effects of problem-solving training versus another vocational intervention, the Self-Directed Search, in reducing career indecision and enhancing career decision-making self-efficacy. Finally, this study examined the relationship between career decision-making self-efficacy and career indecision.

Four research questions and related hypotheses were investigated. The first research question addressed the relationship between career decision-making self-efficacy and career indecision at pretest. The

results supported the hypothesis that there would be a negative correlation between career decision-making self-efficacy and career indecision at pretest. However, the results of a bivariate regression indicated that career decision-making self-efficacy was a weak predictor of career indecision, accounting for only 10% of its variance at pretest. Though the relationship between career decision-making self-efficacy and career indecision was weak ($r = -.32$) at pretest, these results are consistent with those of Taylor and Betz (1983) who reported a negative relationship between career decision-making self-efficacy and career indecision.

It appears that students who have low confidence in their ability to complete the tasks necessary for making career decisions (i.e. low career decision-making self-efficacy) are likely to report being undecided about a major or career. In attempting to explain the relationship between career decision-making self-efficacy and career indecision, Taylor and Betz (1983) suggested that students who have low self-efficacy for career decision making do not initiate the steps to select a major or career and thus remain undecided. Such students may postpone selecting a major for as long as possible because they may feel that they do not know how to make the best career decisions. Relatedly, it is possible that students who lack confidence in their career decision-making abilities remain career undecided because they do not know the appropriate steps in the process of career decision making. If individuals are taught the process of career decision making and receive instruction in how to perform the tasks necessary for making career

decisions, it is possible that their self-efficacy for career decision making will be enhanced and they will be more willing and able to engage in the tasks necessary for making major and career decisions. The interventions used in this study attempted to incorporate this strategy (i.e. provide information on the process of career decision making). The effectiveness of these interventions in reducing career indecision are addressed by subsequent questions.

The second and third research questions sought to determine how career indecision and career decision-making self-efficacy would change from pretest to posttest as a result of the interventions. A 3 (group) x 2 (time) MANOVA with repeated measures (using a doubly multivariate repeated measures design in SPSS) was computed to examine the impact of the treatments. The results of the overall multivariate test indicated that there was a significant main effect for time and a significant group x time interaction. Follow-up univariate analyses revealed that career indecision changed significantly from pretest to posttest in the direction of increased career decidedness. However, contrary to expectations, there were no significant differences between the groups in amount of change in career indecision. Thus, although students became more career decided across time, the interventions did not appear to be salient factors in these changes, given that the control group also became significantly more career decided from pretest to posttest.

A number of explanations can be offered to explain why significant changes were noted in career indecision across time, but with no

variation on the basis of group membership. During the interval between pretest and posttest, students may have been exposed to events external to the interventions that influenced their level of decidedness. Given that the time frame in which this study was completed coincided with preregistration for Summer and Fall semester classes, the urgency of having to select courses may have prompted students to decide upon a major so that they could preregister for courses toward fulfillment of requirements for that major.

In the process of selecting a class schedule, all students had the opportunity to talk to academic advisors, faculty, other professionals, and other students about possible majors and career options. Additionally, exposure to other undecided students and the practice effect of having taken the career questionnaires at pretest may have influenced their level of decidedness as well as their self-efficacy for career decision making (which also increased significantly from pretest to posttest). Because all of the students, regardless of the group to which they belonged, had equal opportunity to be exposed to any of these factors, the differential and overall effectiveness of the treatment (PST) and treatment control (SDS) interventions could have been weakened, and thus, no significant differences by group were uncovered in career indecision.

The failure to detect differences by group in career indecision from pretest to posttest also may be attributed to the small sample size. Seventy students initially volunteered to participate in the study, of which 45 completed pretest data. However, only 33 subjects,

equally distributed across the three groups, completed the entire study, thus minimizing the likelihood of detecting differences by group.

As stated earlier, there also was a significant group x time interaction. The follow-up univariate F-tests revealed that the groups changed differently from pretest to posttest in level of career decision-making self-efficacy, but not in level of career indecision. Additionally, post-hoc (follow-up) contrasts indicated that the PST group changed significantly more than the no-treatment control group from pretest to posttest in level of career decision-making self-efficacy. Although the PST group appeared to improve more than the SDS group in level of career decision-making self-efficacy, this difference was not statistically significant. Similarly, there were no statistically significant differences between the SDS group and the no-treatment control group in amount of change in career decision-making self-efficacy. Thus, consistent with expectations, the problem-solving training seemed to be significantly more effective in raising career decision-making self-efficacy than no treatment. But, contrary to expectations, the problem-solving training was not significantly more effective than the SDS in helping students move toward increased self-efficacy for career decision making.

Holland et al. (1981) stated that divergent (vocational) treatments usually have positive effects on clients, and thus, it was expected that the vocational interventions used in this study would be more effective than no treatment in impacting career indecision and career decision-making self-efficacy. But, more specifically, it was expected that the problem-solving training would lead to greater increases in career

decidedness and career decision-making self-efficacy than either the SDS vocational intervention or no treatment. If, as Holland and Holland (1977) suggested, the processes by which individuals make career decisions are related to problem solving, it was expected that undecided students who were taught decision-making and problem-solving strategies would be more career decided after receiving such training than undecided students who were not taught these skills. Similarly, it was expected that if students were taught decision-making skills, they would be more confident in their abilities to make career decisions than students who had not been taught these skills. It was surprising, then, that the findings in this study did not completely support the differential effectiveness of the vocational interventions in general, and the problem-solving training in particular, in impacting career indecision. Similarly, it was surprising that the results of this study indicated that problem-solving training was not significantly more effective than the SDS intervention in raising career decision-making self-efficacy.

The problem-solving training was based on the premise that if individuals could be taught the steps in decision making (i. e. be taught to generate a number of options, evaluate the consequences of selecting those options, and choose from among those options), and have the opportunity to apply these decision-making strategies to their own career issues, they would be more confident in their ability to complete the tasks associated with career decision making. Students in the PST group were given the opportunity to practice generating and evaluating their career options (i. e. performance accomplishments), receive

feedback on their choices (i. e. verbal persuasion), and observe other career undecided students apply problem-solving strategies to career decision-making (i. e. vicarious experience).. Because the elements (i. e. performance accomplishments, verbal persuasion, vicarious experience) that Bandura (1977, 1982) suggested were important in altering self-efficacy expectations were incorporated directly in the problem-solving training, it follows that the problem-solving training would be effective in raising career decision-making self-efficacy, and more so than no treatment.

The unexpected finding, however, is that problem-solving training was not significantly more effective than the SDS in impacting self-efficacy for career decision-making. The SDS is designed to be self-administered, self-scored, and self-interpreted. Its use in this study was not intended to directly incorporate strategies for raising self-efficacy. But, the SDS intervention as used in this study seems to have contained elements sufficient for raising career decision-making self-efficacy. Bandura (1982) stated that "...people register notable increases in self-efficacy when...they gain new skills to manage threatening activities" (p. 125). Given that the SDS yields a list of potential occupations, completing the SDS (i. e. performance accomplishment) may have given the students confidence that they knew how to manage the career decision-making process and how to select a major or career.

But, the significant factor in enhancing the self-efficacy of students in the SDS group may have been the individual follow-up session that they had with the principal investigator. In this session, they

were given the opportunity to discuss the career options indicated on the SDS. The feedback (i.e. verbal persuasion) that they received from the principal investigator in this follow-up session may have been the necessary and sufficient ingredient for increasing their confidence in their ability to make career decisions. Given that both the problem-solving training and the SDS intervention may have provided students with skills (e. g. problem-solving strategies, listing of potential occupations) important in mastering the process of career decision making, the two treatment approaches may have become equally effective in enhancing self-efficacy for career decision making.

Additional post-hoc analyses indicated that the two vocational treatments (PST and SDS) also were effective in enhancing self-efficacy for problem solving. Overall self-efficacy for problem solving changed significantly from pretest to posttest for the PST and SDS groups, but not for the no-treatment control group. Given that students in the PST group received training in problem-solving strategies, it follows that their self-efficacy for problem solving would increase after having received this training. However, it is surprising that students in the SDS group, who were not given specific training in problem-solving methods, also increased in problem-solving self-efficacy from pretest to posttest.

The explanations offered to account for the finding that there were no statistically significant differences in amount of change in career decision-making self-efficacy for the PST and SDS groups may apply to these results as well. That is, some of the elements important in raising self-efficacy may have been included in both vocational

interventions, and thus students became more confident that they knew what steps to follow to solve problems in general, and career decision-making problems in particular. That both the problem-solving training and the SDS interventions were effective in raising career decision-making self-efficacy as well as self-efficacy for problem solving, (and given that career decision-making self-efficacy predicts career indecision) underscores Taylor and Betz's (1983) suggestion that there be more vocational interventions designed to enhance self-efficacy.

The fourth research question addressed the relationship between career decision-making self-efficacy and career indecision at posttest. The results of a Pearson product-moment correlation indicated that, as hypothesized, there was a significant negative correlation between career decision-making self-efficacy and career indecision at posttest ($r = -.77$). Additionally, the results of a bivariate regression revealed that career decision-making self-efficacy was a significant predictor of career indecision at posttest, accounting for 59.5% of its variance.

There was a dramatic increase in the strength of the relationship between career decision-making self-efficacy and career indecision from pretest to posttest (pretest $r = -.32$). A number of possible explanations may be offered to account for the significant increase in the correlation between these two variables. It has been noted that students in the intervention and no-treatment control groups demonstrated significant decreases in career indecision (Question #2) and significant increases in career decision-making self-efficacy (Question #3) from pretest to posttest. Additionally, the mean scores

for the entire sample moved in the direction of lower indecision and greater career decision-making self-efficacy from pretest to posttest. Given these results, it seems plausible that the relationship between the two variables also would change from pretest to posttest, becoming significantly more negative.

Social desirability also may have played a role in the increase in the strength of the relationship between career decision-making self-efficacy and career indecision from pretest to posttest. If the students recognized that they were completing the same career questionnaires that they had completed at the first assessment, they may have decided that they "should" be more career decided and more confident in their career decision making abilities, and may have responded accordingly. Or, they may have attempted to guess the purpose and desired outcomes of the study and responded at posttest so that their scores would reflect decreased indecision and greater self-efficacy for career decision making. A related, but perhaps remote possibility is that students discovered that high career decision-making self-efficacy should correspond to low career indecision and responded accordingly at posttest.

Given that the results from this study revealed a significant negative relationship between career decision-making self-efficacy and career indecision both at pretest and posttest, it seems likely that an individual's self-efficacy expectations influences his or her career decision-making and degree of career indecision. Although this finding suggests that in intervening to decrease career indecision, it will be important to intervene to enhance self-efficacy, in this present study,

the vocational interventions which were effective in enhancing self-efficacy were no more effective than no treatment or a number of other potential factors in decreasing career undecidedness. Despite the negative relationship between career indecision and career decision-making self-efficacy, it appears that the same interventions used to raise self-efficacy may not be sufficient to effect decreases in career indecision.

Limitations

The results and lack of significant findings in this study should be considered in light of certain limitations. Perhaps the most obvious limitation is the sample size. Although a number of students ($N = 70$) initially volunteered to participate in the study, the dropout rate (47%) between the recruitment and postassessment phases was high, resulting in an extremely small final sample ($N = 33$). The small number of subjects in each treatment group may have limited the power to detect significant differences between the groups. Thus, any lack of findings in support of the effectiveness of the intervention may be due to the small sample size.

A second limitation concerns the time frame for completion of the problem-solving training and postassessment. The problem-solving training lasted for two sessions of one hour each. This may not have been sufficient time for the students to grasp the problem-solving method well enough to apply it to their particular career decision-making difficulties. Relatedly, the interval between pretest and posttest was short, and it may have been more effective to have a longer period of time over which to assess changes in career indecision and

career decision-making self-efficacy. If the interval between the treatment and posttesting had been longer, subjects may have been able to process more thoroughly the principles taught in the problem-solving training and make them relevant to their career concerns.

A third limitation of this research has to do with the design of the treatment-control intervention, the SDS. The failure to detect significant differences between any of the groups in amount of change in career indecision, and between the SDS and PST groups in amount of change in career decision-making self-efficacy, may be attributed to the design of the SDS intervention, particularly the individual follow-up session with the researcher. In the follow-up session, participants received individual attention from a career counseling professional, the principal investigator, and were able to ask specific questions about their career options. Indirectly, and unintentionally, students in the SDS group may have received some of the same elements of treatment (e. g. generating and evaluating career options, feedback from the principal investigator) as students in the PST group, thus contaminating the "purity" of the problem-solving training, and making it difficult to uncover differences between the groups.

As has been mentioned elsewhere in this chapter, the results of this study also are limited by potential contamination from events external to the treatment which occurred concurrent with treatment (e.g. preregistration for courses, academic advisement sessions, etc.). These events may have influenced the level of career decidedness and self-efficacy that students reported at posttest. Relatedly, pretesting of subjects on the CDS and CDMSES may have influenced their responses on

these instruments at posttest.

A final limitation is that students were drawn from two populations. Some of the students volunteered in response to a letter sent directly to them or in response to advertisements on campus. The remaining subjects volunteered to fulfill research participation requirements for an introductory psychology course. Analyses indicated that there were no differences between these subjects on career indecision or career decision-making self-efficacy at pretest or posttest. However, their motivations for participating in the study may have been different (i.e. to receive help with their career decision-making difficulties or to receive research credit) and indirectly may have influenced their responses or level of involvement in the interventions.

Conclusions and Implications

Despite the limitations to the findings in this study, useful data were generated which have implications for vocational counseling practice and future research.

The evidence gathered in this study supports a negative relationship between career indecision and career decision-making self-efficacy. Increases in career decision-making self-efficacy were associated with decreases in career indecision. These results suggest that self-efficacy theory has utility in explaining career indecision and support the application of self-efficacy theory to the understanding of the process of career decision making.

Evidence also indicates that all students in this study, including those who did not receive a vocational intervention, showed significant

decreases in career indecision from pretest to posttest. Thus, it appears that the vocational interventions investigated in this study were no more effective than any one of a number of influences which may have impacted the subjects' career indecision (e. g. preregistration for classes, practice effect of completing the career assessments).

Although there were no significant differences between the groups in changes in career indecision, the groups of students in this study did show significant differences in their increases in career decision-making self-efficacy from pretest to posttest. The students in the PST group improved significantly more than those in the no-treatment control group. However, there were no statistically significant differences in changes in career decision-making self-efficacy between the PST and SDS groups, or between the SDS group and the no-treatment control group. Similarly, students in both the PST and SDS groups increased significantly in problem-solving self-efficacy from pretest to posttest, although the students in the control group did not differ significantly in their problem-solving confidence from pretest to posttest. It appears then, that both vocational interventions were effective in raising self-efficacy for career decision making and self-efficacy for problem solving.

This study sought to demonstrate the differential effectiveness of problem-solving training relative to no treatment and an alternate vocational intervention, the SDS. Evidence gathered in this study does not indicate that one intervention was more effective than the other in decreasing career indecision. However, there was some evidence to indicate that problem-solving training was significantly more effective

than no treatment in increasing career decision-making self-efficacy and self-efficacy for problem solving, though not significantly more effective than the SDS. (The PST group did improve more in career decision-making self-efficacy across time than the SDS group, but this difference was not statistically significant). Thus, problem-solving training was only differentially more effective, relative to no treatment, in impacting career decision-making self-efficacy and problem-solving self-efficacy.

The literature reviewed in this study suggests that problem solving may play a role in career decision making and career indecision (Larson & Heppner, 1985; Mendonca & Siess, 1976). Training in problem solving also has demonstrated some effectiveness in impacting career indecision (Clark & Greenberg, 1986; Mendonca & Siess, 1976) though it has not been shown to be more effective than any other vocational intervention in reducing career indecision. Thus, it is too early to conclude that problem-solving training is more or less effective than any other vocational intervention in reducing career indecision or to recommend that it should replace other vocational counseling strategies. But, given that problem-solving training appears to have utility in impacting self-efficacy for career decision making and given that increases in self-efficacy are associated with decreases in career indecision (revealed by the negative relationship between career indecision and career decision-making self-efficacy at pretest and posttest), counselors still may be encouraged to incorporate problem-solving strategies as one component of the vocational treatment in working with career undecided clients. Additionally, despite the lack of conclusive

evidence from this study about its relative merit in effecting career indecision, more research assessing the impact of the problem-solving training as a vocational intervention is warranted.

Recommendations

The findings in this study have indicated several areas in which future research may be useful.

Given the lack of statistically significant findings about the differential effectiveness of the problem-solving training relative to the SDS intervention, it seems important to replicate this study. In doing so, however, a number of changes should be made, the most obvious of which is to increase the sample size. With a larger sample size distributed across the treatment groups, it may be possible to determine if there are differences in intervention effects due to group, race, and gender. Differences in treatment effects also could be detected with a larger sample size and with race or gender held constant across the treatment groups.

It also may be important to extend the number of training sessions in problem solving from two to at least four. This could allow two sessions to be devoted to introducing the problem-solving model and two sessions for general application and practice applying the model to career decision-making. If the number of training sessions is extended, it would be useful also to extend the time between intervention and posttesting to at least three or four weeks. Doing so perhaps would allow more time for participants to absorb and apply the problem-solving method, thus allowing more accurate postassessment of the impact of the

problem-solving training. It also will be important to schedule the research during a time that does not coincide with either preregistration for classes or the deadline for declaring a major so as to help minimize potential confounds to changes in career indecision.

The design of this present study (i.e. PST, SDS, no-treatment control) could be altered to include a fourth condition--a posttest only control group. The inclusion of a posttest only group could help eliminate the possible confounding of treatment by a practice effect and could help determine whether simply completing the career questionnaires at pretest is sufficient to reduce indecision and increase career decision-making self-efficacy. Additionally, in order to continue to assess the differential effectiveness of the problem-solving training, it should be compared to other vocational interventions such as a career decision-making discussion group, a career course, a computerized career guidance system, or individual counseling.

Future research should continue to focus on confirming how well career decision-making self-efficacy predicts career indecision. In addition, as Taylor and Betz (1983) suggested, there should be more studies examining the effectiveness of vocational interventions designed to increase career decision-making self-efficacy expectations. Different vocational interventions should be compared to determine their relative effectiveness in helping students feel more self-efficacious about career decision making. Researchers also can examine whether intervening to increase self-efficacy actually does lead to decreases in career indecision. Likewise, they can examine whether the relationship between career decision-making self-efficacy and career indecision gets

stronger after the vocational intervention.

Finally, this intervention should be replicated in a more "real world" context, exclusively utilizing actual clients who have sought counseling for career indecision.

APPENDIX A
LETTER RECRUITING STUDENTS

Dear Student:

My name is Pauline McNeill and I am a Counselor at the University Counseling Center in Nash Hall.

I received your name along with the names of other Sophomores who have not declared a major from the Deans of the General College and the College of Arts and Sciences. As a career counselor, I recognize that selecting a college major and subsequent career is one of the most important decisions that you will make as a student. But, deciding upon a major also is one of the most difficult decisions that you will have to make. I have designed a program of career decision-making research especially with students like you in mind--students who have not selected a major and who are thus career undecided. If you are interested in learning specific strategies to help you decide upon a major and career, I invite you to participate in this program of research!

The career decision-making program that you are being invited to participate in involves research examining the factors that influence career decision-making as well as workshops on strategies for career decision-making. As a participant, you will be asked to complete two questionnaires about career decision making. It will take about 25

minutes (or less) to complete the two questionnaires. You will complete the questionnaires together with other students. Your responses will be used for research purposes only and will be kept confidential.

Based upon the results of these questionnaires, you may be invited to participate in a two-session workshop designed to teach specific strategies for career decision making. If you are not invited to participate in the two-session workshops, you may be invited to attend a group session in which you will complete, at your own pace, a career inventory which will help you clarify your interests, skills, and values, and match those with a number of potential occupations. If you are not invited immediately to participate in the workshops or to complete the career interest inventory, in approximately four weeks from the start of the research, you will be given the opportunity to participate in either the career decision-making workshops or to complete the career interest inventory, whichever you prefer.

I am really excited about this program of research. If you decide to participate in the research program, I believe that it will enhance your knowledge of the process of career decision making, and perhaps more importantly, teach you specific decision-making skills which may be helpful as you try to decide upon a college major and career.

If you are willing to participate in this program of career decision-making research, please fill out the attached information sheet and return it to me at the University Counseling Center in the enclosed self-addressed envelope by January 29, 1990. Please drop the envelope

in any CAMPUS mailbox which are located in residence halls and in the Carolina Union. (No postage stamp is necessary if you use the CAMPUS mailboxes).

If you have questions, or if you would like more information about the study, please feel free to contact me at the University Counseling Center at 962-2175 daily between 9:00 a.m. and 5:00 p.m.

I hope that you will join me in this program of research!

Sincerely,

Pauline McNeill

Counselor and Coordinator of Outreach

APPENDIX B
INFORMATION SHEET

I am interested in participating in the research on Career Decision
Making being conducted by Ms. Pauline McNeill at the University
Counseling Center.

Name _____

Local Address _____

Phone Number _____

Best times to be reached by phone _____

APPENDIX C
SIGN-UP SHEET

Experiment Title Strategies in Career Decision Making

Experiment Number 85 Experimenter Pauline McNeill

Experimenter's Phone # 962-2175 Credit Hours 2 to 3

Date _____ Time _____ Place University Counseling
Center, Nash Hall

Additional Information SOPHOMORES ONLY; Undecided about major or career;
Up to 4 sessions; Attendance at all sessions required to receive full
credit; Subsequent sessions will be announced at first meeting

<u>REPORTING TIME</u>	<u>NAME OF STUDENT</u>	<u>PHONE #</u>
_____	1. _____	_____
_____	2. _____	_____
_____	3. _____	_____
_____	4. _____	_____
_____	5. _____	_____
_____	6. _____	_____
_____	7. _____	_____
_____	8. _____	_____
_____	9. _____	_____
_____	10. _____	_____
_____	11. _____	_____

APPENDIX D
INFORMED CONSENT FORMS

Psychology Subject Pool Students

This study you are being asked to participate in involves research examining the factors that influence career decision making. As a subject in this study, you will be asked to complete two self-report paper-and-pencil questionnaires about career decision making. It will take about 25 minutes (or less) to complete the two questionnaires. You will complete the questionnaires together with other students. However, there will be no planned social interaction at this time.

After completing these questionnaires, you may be among selected individuals who will be invited to participate in a two-session (one hour per session) workshop on career decision making. Workshop participants will be asked to complete a second set of questionnaires in approximately three to four weeks after signing this form. If you are not invited to participate in the workshops on career decision making, you may be invited to attend a group session in which you will complete, at your own pace, a career interest inventory which will help you clarify your interests, skills, and values and match those with potential occupations. If you are among this group of students, you also will be asked to complete a second set of questionnaires in approximately three to four weeks. If you are not invited to either the

workshops or to the group session to complete the career inventory, at the end of the study, in approximately three to four weeks, you will be given the opportunity to participate in the career decision-making workshops or to complete the career interest inventory, whichever you prefer. At that time, you also will be asked to complete a second set of questionnaires.

This study should shed light on factors influencing career decision making in college students and will provide information on specific strategies for facilitating career decision making. If you complete the questionnaires according to instructions, you will earn credit toward your research participation requirement based upon your level of participation as described in the preceding paragraph and according to standards for assigning research credit as designated by the Department of Psychology. You will receive one hour of credit for completing the two self-report questionnaires regardless of whether you participate in the subsequent sessions.

No risks are anticipated. However, some risks may be unforeseeable. You will not be asked to put your name on the questionnaires, but instead, will be asked for your student identification number as a way of identifying all the questionnaires that you complete. Attempts will be made to maintain the confidentiality of your questionnaire results within legal limits of the law. Your data will be amassed with other subjects' data and will be used for statistical purposes only in the form of group data. This data

will be kept in a file drawer in the principal investigator's office in the University Counseling Center. This data will be accessible only to the principal investigator, her faculty advisor, and statisticians as necessary in statistical analysis of data.

The results of your questionnaires will not be individually analyzed and explained to you. If you have questions, please feel free to contact Pauline McNeill at 962-2175 daily between 9:00 a.m. and 5:00 p.m.

I also will be available at the completion of the study to further discuss any questions that you may have about the questionnaires.

You may stop participating in this study at any time if you so desire, without any penalty or jeopardy. You also may leave blank any questions that you do not want to answer.

You may contact the AA-IRB at the following address and telephone number at any time during this study should you feel your rights have been violated:

Academic Affairs Institutional Review Board

CB # 4100, 300 Bynum Hall, 919-966-5625.

I have read and understand the procedure described above. I agree to participate in the procedure and have received a copy of this description.

Subject _____ Date _____

Principal

Investigator _____ Date _____

Pauline McNeill

General College Participants

This study you are being asked to participate in involves research examining the factors that influence career decision making. As a subject in this study, you will be asked to complete two self-report questionnaires about career decision making. It will take about 25 minutes (or less) to complete the two questionnaires. You will complete the questionnaires together with other students. However, there will be no planned social interaction at this time.

After completing these questionnaires, you may be among selected individuals who will be invited to participate in a two-session (one hour per session) workshop on career decision making. Workshop participants will be asked to complete a second set of questionnaires in approximately three to four weeks after signing this form. If you are not invited to participate in the workshops on career decision making, you may be invited to attend a group session in which you will complete, at your own pace, a career interest inventory which will help you clarify your interests, skills, and values and match those with potential occupations. If you are among this group of students, you also will be asked to complete a second set of questionnaires in approximately three to four weeks. If you are not invited to either the workshops or to the group session to complete the career inventory, at the end of the study, in approximately three to four weeks, you will be given the opportunity to participate in the career decision-making workshops or to complete the career interest inventory, whichever you prefer. At that time, you also will be asked to complete a second set of questionnaires.

This study should shed light on factors influencing career decision making in college students and will provide information on specific strategies for facilitating career decision making. Participation in this study is strictly voluntary. There will be no form of pay, reward, or credit given for participation, unless you are participating to fulfill research participation requirements for general psychology.

No risks are anticipated. However, some risks may be unforeseeable. You will not be asked to put your name on the questionnaires, but instead, will be asked for your student identification number as a way of identifying all the questionnaires that you complete. Attempts will be made to maintain the confidentiality of your questionnaire results within legal limits of the law. Your data will be amassed with other subjects' data and will be used for statistical purposes only in the form of group data. This data will be kept in a file drawer in the principal investigator's office in the University Counseling Center. This data will be accessible only to the principal investigator, her faculty advisor, and statisticians as necessary in the statistical analysis of data.

The results of your questionnaires will not be individually analyzed and explained to you. If you have questions, feel free to contact Pauline McNeill at 962-2175 daily between 9:00 a.m. and 5:00 p.m.

I also will be available at the completion of the study to further discuss any questions that you may have about the questionnaires.

You may stop participating in this study at any time if you so desire, without any penalty or jeopardy. You also may leave blank any questions that you do not want to answer.

You may contact the AA-IRB at the following address and telephone number at any time during this study should you feel your rights have been violated:

Academic Affairs Institutional Review Board

CB # 4100, 300 Bynum Hall, 919-966-5625.

I have read and understand the procedure described above. I agree to participate in the procedure and have received a copy of this description.

Subject _____ Date _____

Principal

Investigator _____ Date _____

Pauline McNeill

APPENDIX E
DEMOGRAPHIC DATA SHEET

My student number is _____

CIRCLE responses:

1. Gender: 1 2
 Male Female

2. Age: _____

3. Race: 1 2 3 4 5
 Black White Asian Hispanic Other

APPENDIX F
 CAREER DECISION SCALE
 THIRD REVISION (1976)
 by Samuel H. Osipow, Clarke G. Carney, Jane Winer,
 Barbara Yanico and Maryanne Koschier

This questionnaire contains some statements that people commonly make about their educational and occupational plans. Some of the statements may apply to you; others may not. Please read through them and indicate how closely each item describes you in your thinking about a career or an educational choice by circling the appropriate number on the answer sheet. An example is given below:

Exactly like me	Very much like me	Only slightly like me	Not at all like me
4	3	2	1

I am excited about graduating and going to work.

If you are excited about going to work and feel no hesitation about it you would circle "4" to indicate that the description is exactly the way you feel. If the item is very close, but not exactly the way you feel--for example, you're generally excited about going to work after you graduate, but are experiencing some minor concerns about it--you would circle the number "3". You would circle "2" if the item describes you in some ways, but in general it is more unlike than like your feelings; for example, if you are generally more concerned than excited about work after graduation. Finally, you would circle "1" if the item does not describe your feelings at all; that is, you are experiencing a great deal of concern and no excitement about graduation and work.

Please be sure to give only one response to each item and answer every item.

CIRCLE ANSWER

		Like Me		Not Like Me	
1.	I have decided on a career and feel comfortable with it. I also know how to go about implementing my choice.	4	3	2	1
2.	I have decided on a major and feel comfortable with it. I also know how to go about implementing my choice.	4	3	2	1
3.	If I had the skills or the opportunity, I know I would be a _____ but this choice is really not possible for me. I haven't given much consideration to any other alternatives, however.	4	3	2	1
4.	Several careers have equal appeal to me. I'm having a difficult time deciding among them.	4	3	2	1
5.	I know I will have to go to work eventually, but none of the careers I know about appeal to me.	4	3	2	1
6.	I'd like to be a _____, but I'd be going against the wishes of someone who is important to me if I did so. Because of this, it's difficult for me to make a career decision right now. I hope I can find a way to please them and myself.	4	3	2	1
7.	Until now, I haven't given much thought to choosing a career. I feel lost when I think about it because I haven't had many experiences in making decisions on my own and I don't have enough information to make a career decision right now.	4	3	2	1

CIRCLE ANSWER

	Not
Like Me	Like Me

- | | | | | | |
|-----|---|---|---|---|---|
| 8. | I feel discouraged because everything about choosing a career seems so "iffy" and uncertain; I feel discouraged, so much that I'd like to put off making a decision for the time being. | 4 | 3 | 2 | 1 |
| 9. | I thought I knew what I wanted for a career, but recently I found out that it wouldn't be possible for me to pursue it. Now I've got to start looking for other possible careers. | 4 | 3 | 2 | 1 |
| 10. | I want to be absolutely certain that my career choice is the "right" one, but none of the careers I know about seem ideal for me. | 4 | 3 | 2 | 1 |
| 11. | Having to make a career decision bothers me. I'd like to make a decision quickly and get it over with. I wish I could take a test that would tell me what kind of career I should pursue. | 4 | 3 | 2 | 1 |
| 12. | I know what I'd like to major in, but I don't know what careers it can lead to that would satisfy me. | 4 | 3 | 2 | 1 |
| 13. | I can't make a career choice right now because I don't know what my abilities are. | 4 | 3 | 2 | 1 |
| 14. | I don't know what my interests are. A few things "turn me on" but I'm not certain that they are related in any way to my career possibilities. | 4 | 3 | 2 | 1 |

CIRCLE ANSWER

			Not	
	Like Me		Like Me	

- | | | | | | |
|-----|--|---|---|---|---|
| 15. | So many things interest me and I know I have the ability to do well regardless of what career I choose. It's hard for me to find just one thing that I would want as a career. | 4 | 3 | 2 | 1 |
| 16. | I have decided on a career, but I'm not certain how to go about implementing my choice. What do I need to become a _____ anyway? | 4 | 3 | 2 | 1 |
| 17. | I need more information about what different occupations are like before I can make a career decision. | 4 | 3 | 2 | 1 |
| 18. | I think I know what to major in, but I feel I need some additional support for it as a choice for myself. | 4 | 3 | 2 | 1 |
| 19. | None of the above items describes me. The following would describe me better: (write your response below). | | | | |

APPENDIX G
CAREER DECISION-MAKING SELF-EFFICACY SCALE
SELF-EFFICACY EXPECTATIONS AND CAREER DECISION-MAKING

Below are a list of tasks that you might do in trying to make a career decision. Please indicate your confidence in your ability to successfully complete each task. For example, if you had complete confidence that you could complete a task you would circle the number "9". If you felt that you had no confidence at all that you could complete the task, you would circle the number "0". The other numbers represent varying degrees of confidence from complete confidence to no confidence. Please rate each task.

		Complete Confidence					No Confidence				
1.	List several majors that you are interested in	9	8	7	6	5	4	3	2	1	0
2.	Accurately assess your abilities	9	8	7	6	5	4	3	2	1	0
3.	List several occupations that you are interested in	9	8	7	6	5	4	3	2	1	0
4.	Choose a career that will fit your preferred lifestyle	9	8	7	6	5	4	3	2	1	0
5.	Talk to a faculty member in a department you are considering for a major	9	8	7	6	5	4	3	2	1	0
6.	Get letters of recommendation from your professors	9	8	7	6	5	4	3	2	1	0
7.	Change occupations if you are not satisfied with the one you enter	9	8	7	6	5	4	3	2	1	0

		Complete Confidence					No Confidence				
8.	Decide what you value most in an occupation	9	8	7	6	5	4	3	2	1	0
9.	Ask a faculty member about graduate schools and job opportunities in your major	9	8	7	6	5	4	3	2	1	0
10.	Get involved in a work experience relevant to your future goals	9	8	7	6	5	4	3	2	1	0
11.	Describe the job duties of the career/occupation you would like to pursue	9	8	7	6	5	4	3	2	1	0
12.	Determine the academic subject you have the most ability in	9	8	7	6	5	4	3	2	1	0
13.	Choose a major or career that will fit your interests	9	8	7	6	5	4	3	2	1	0
14.	Decide whether or not you will need to attend graduate or professional school to achieve your goals	9	8	7	6	5	4	3	2	1	0
15.	Apply again to graduate schools after being rejected the first time	9	8	7	6	5	4	3	2	1	0
16.	Determine whether you would rather work primarily with people or with information	9	8	7	6	5	4	3	2	1	0
17.	Choose a major or career that will suit your abilities	9	8	7	6	5	4	3	2	1	0
18.	Plan course work outside of your major that will help you in your future career	9	8	7	6	5	4	3	2	1	0

		Complete Confidence					No Confidence				
19.	Identify some reasonable major or career alternatives if you are unable to get your first choice	9	8	7	6	5	4	3	2	1	0
20.	Figure out what you are and are not ready to sacrifice to achieve your career goals	9	8	7	6	5	4	3	2	1	0
21.	Talk with a person already employed in the field you are interested in	9	8	7	6	5	4	3	2	1	0
22.	Choose the best major for you even if it took longer to finish your college degree	9	8	7	6	5	4	3	2	1	0
23.	Identify employers, firms, institutions relevant to your career possibilities	9	8	7	6	5	4	3	2	1	0
24.	Define the type of lifestyle you would like to live	9	8	7	6	5	4	3	2	1	0
25.	Find information about graduate or professional schools	9	8	7	6	5	4	3	2	1	0
26.	Choose the major you want even though the job market is declining with opportunities in this field	9	8	7	6	5	4	3	2	1	0
27.	Successfully manage the job interview process	9	8	7	6	5	4	3	2	1	0
28.	Select one major from a list of potential majors you are considering	9	8	7	6	5	4	3	2	1	0
29.	Select one occupation from a list of potential occupations you are considering	9	8	7	6	5	4	3	2	1	0

		Complete Confidence					No Confidence				
30.	Determine the steps you need to take to successfully complete your chosen major	9	8	7	6	5	4	3	2	1	0
31.	Persistently work at your major or career goal even when you get frustrated	9	8	7	6	5	4	3	2	1	0
32.	Prepare a good resume	9	8	7	6	5	4	3	2	1	0
33.	Determine what your ideal job would be	9	8	7	6	5	4	3	2	1	0
34.	Make a career decision and then not worry about whether it was right or wrong	9	8	7	6	5	4	3	2	1	0
35.	Find information in the library about occupations you are interested in	9	8	7	6	5	4	3	2	1	0
36.	Determine the steps to take if you are having academic trou- ble with an aspect of your chosen major	9	8	7	6	5	4	3	2	1	0
37.	Find information about companies who employ people with college majors in English	9	8	7	6	5	4	3	2	1	0
38.	Find information about educational programs in engineering	9	8	7	6	5	4	3	2	1	0
39.	Figure out whether you have the ability to successfully take math courses	9	8	7	6	5	4	3	2	1	0

		Complete Confidence					No Confidence				
40.	Find and use the place- ment office on campus	9	8	7	6	5	4	3	2	1	0
41.	Find out the employ- ment trends for an occupation in the 1990s	9	8	7	6	5	4	3	2	1	0
42.	Find out about the average yearly earnings of people in an occupa- tion	9	8	7	6	5	4	3	2	1	0
43.	Choose a major or career that your parents do not approve of	9	8	7	6	5	4	3	2	1	0
44.	Resist attempt of parents or friends to push you into a career or major you believe is beyond your abilities	9	8	7	6	5	4	3	2	1	0
45.	Choose a career in which most workers are of the opposite sex	9	8	7	6	5	4	3	2	1	0
46.	Move to another city to get the kind of job you really would like	9	8	7	6	5	4	3	2	1	0
47.	Go back to school to get a graduate degree after being out of school 5-10 years	9	8	7	6	5	4	3	2	1	0
48.	Change majors if you did not like your first choice	9	8	7	6	5	4	3	2	1	0
49.	Come up with a strategy to deal with flunking out of college	9	8	7	6	5	4	3	2	1	0
50.	Make a plan of your goals for the next five years	9	8	7	6	5	4	3	2	1	0

APPENDIX H

INTERVENTION: DECISION-MAKING SKILLS VIA PROBLEM-SOLVING APPROACH

Session I.

1. Provided brief overview of the process of career decision-making.

see handout 1

2. Rationale for focus of workshop

Explained that will focus on problem solving as a way to more effectively master the process of career decision making.

Pointed out that decision making involves assessing a situation, delineating alternatives, evaluating those alternatives, selecting from among the alternatives, and preparing to implement the choice. These also are the steps in problem solving.

3. Steps in problem solving

see handout 2

Facilitator presented a general problem situation and modeled working through the problem according to the steps in the problem-solving method. The facilitator verbalized how she arrived at each step. The group was encouraged to brainstorm with the facilitator possible alternatives and to evaluate each alternative according to potential consequences.

4. Practice

The facilitator posed a career-related problem to the group and modeled using the problem-solving method. The group was encouraged to collectively work through the steps in the problem-solving method. The facilitator coached the group regarding appropriate responses, prompted them, provided feedback and positive reinforcement for successive approximations.

5. Group discussion on the difficulties in career decision making.

The group was led in a brief discussion on the general problems/difficulties that they have in making career decisions. The facilitator pointed out how problem-solving method as presented thus far can be helpful in resolving career indecision.

The facilitator also pointed out that different career outcomes may be optimal for different people (Mitchell & Krumboltz, 1984).

6. Practice in small groups

The group was divided into dyads and triads and was asked to work on two career-related problems using the problem-solving method. They were encouraged to brainstorm and to provide each other with positive reinforcement as they worked through problems. They were given markers and newsprint on which to write their options and were encouraged to evaluate their responses using the Problem-Solving Checklist.

7. Homework assignment

Students were asked to identify a naturally occurring problem in their lives prior to the next session and to work on it by applying the problem solving method. They were told that they would be asked to voluntarily share their results at the next session. The students also were asked to delineate a current career-related problem and to attempt to work on it between sessions using the problem-solving method and Checklist.

Session II.

1. Review last session

Briefly reviewed the steps in problem solving, the rationale for a problem-solving approach, and its relation to career decision-making. In order to ascertain that students did in fact learn the steps in the problem-solving method, the researcher quizzed them on the steps in the method.

2. Review homework assignment

Gave students the opportunity to report on situations in which they applied the problem solving approach and how effective they found it.

3. Practice in small groups

This block of time was devoted to working through career-related problems. The group broke into small groups and each person was encouraged to spend time working within the small group on their

career difficulty. Using the Problem-Solving Checklist as a guide, the group was instructed to help each other devise alternatives and a plan of action and help each other decide which occupation best fits their skills, interests, values, and goals.

4. Summary/Review/Future Direction

This session concluded with the facilitator encouraging students to practice using problem solving strategies in all areas of their lives. Some time was allowed for students to reflect upon what they learned in the two sessions, and how they anticipated using the problem-solving model in the future.

Appendix I
HANDOUT 1:
PROCESS OF CAREER DECISION MAKING

A. Self-Knowledge and Self-Exploration

1. Assess Skills--those things you do well
2. Assess Interests--those things you enjoy doing
3. Assess Values--those things which are important to you
4. Assess Goals--those things you want to accomplish in life

Aids in this phase are the Strong Campbell Interest Inventory (SII) and the computerized career guidance system: SIGI PLUS

B. Occupational Information and Exploration

Gather information on various jobs and possible occupations--entry requirements, educational requirements, work environment, and salary

Interview people in the various occupations to get a personal perspective

C. Decision Making

Select the job, occupation which best fits your skills, interests, and values and which will best enable you to accomplish your life goals

D. Plan of Action

Devise strategies for following through on your choices

(e. g. select major, take extra courses, complete an internship, etc.)

APPENDIX J
HANDOUT 2:
STEPS IN PROBLEM SOLVING
(adapted from Goldfried and Davison, 1976)

1. General Orientation

Problem situations are a normal part of life

It is important to identify problem situations when they occur

It is important to inhibit the tendency to respond impulsively and automatically

2. Problem Definition and Formulation

Operationalize the problem--what, when, where, how long, in what situations

What issues/conflicts make a given situation problematic

What goals exist for altering the problem

3. Generation of Alternatives

Brainstorm to come up with a range of options

Devise strategies for problem resolution--what to do

Devise tactics to implement strategies--how to do it

4. Decision Making

Anticipate likely consequences of each strategy

Consider long and short term consequences of each strategy

Consider personal and social consequences of each strategy

Select best strategy and tactic for problem resolution

Select the strategy with the best payoff

5. Verification

Carry out the selected course of action, observe the
consequences

If consequences are satisfactory, terminate problem solving

If consequences are not satisfactory, continue the process of
problem solving until satisfactory consequences are
achieved

APPENDIX K
INSTRUCTION IN PROBLEM SOLVING: STEPS
(From Goldfried and Davison, 1976)

I. General Orientation

Attempted to help students come to understand why problem situations occur--e.g. changing roles, new environments-- and that problem situations are a normal part of life.

Attempted to help students come to expect that they can cope with some of these situations.

Stressed the importance of recognizing problems as they occur and of inhibiting the tendency to respond automatically without thinking through situations.

Had students identify some areas in their lives where problems occur--e.g. family, job, school, health, friends.

II. Problem Definition and Formulation

An attempt was made to teach students to provide details necessary for an operational definition of the problem, in concrete and specific terms. They were instructed to attend to internal (i.e. thoughts, feelings) and external aspects of the situation.

A behavioral assessment approach was used to further define the problem--what, when, where, how long, in what situations, etc.

In formulating the problem, students were taught to identify their goals (i.e. what they want to change), and the issues/conflicts that make the situation a problem.

In sum, this step focused on identifying (1) what is the problem, (2) what makes the situation a problem, (3) what is the desired change.

III. Generation of Alternatives

Students were taught to use the brainstorming technique developed by Osborn (1963) to come up with a range of possible responses to the problem:

1. Criticism is ruled out--withhold adverse judgment of ideas until later.
2. "Freewheeling" is welcome--the wilder the idea, the better.
3. Quantity is wanted--The greater the number of ideas, the greater the likelihood of finding useful ideas.
4. Combination and improvement are sought--Pointed out how the ideas of others can be turned into better ideas and how two or more ideas can join to form another idea.

In addition to generating possible responses/alternatives, they also were instructed to generate general courses of actions (strategies--what to do) and specific ways to implement alternatives (tactics--how to do it).

IV. Decision Making

Students were taught to predict which alternative is worth pursuing. They were instructed to review each alternative and the likely consequences of each strategy. For each alternative, they were instructed to ask "If I were successful in carrying out this particular course of action, what would be the likely consequence?" They also were told to consider long-term and short-term consequences as well as the personal and social consequences of each alternative.

Students were instructed to rate the likelihood of the occurrence of each consequence--highly likely, likely, unlikely.

They also were taught to rate the utility of each consequence--very good, good, neutral, bad, very bad.

The Problem-Solving Checklist developed by Goldfried and Davison (1976) will served as a guide in rating each alternative.

After evaluating each alternative and weighing the consequences of each, students were encouraged to eliminate poor alternatives and to select the strategy with the best payoff which will resolve the major issue while maximizing positive consequences.

V. Verification

Once students have decided on the best course of action, they are encouraged to act on that decision and to evaluate how effective the action has been. They were told that if the results are satisfactory, problem solving can be terminated. If the action is not satisfactory in resolving the problem, the process can be continued.

APPENDIX L
PROBLEM-SOLVING CHECKLIST

1. Problem Definition and Formulation

a. Definition of situation, including important details

Background:

Specific Problem Situation:

b. Formulation of conflicts or issues:

_____ vs. _____

_____ vs. _____

2. Brainstorming general courses of action (strategies):

3. Deciding on a strategy

(++ = very good; + = good;
0 = neutral; - = bad;
-- = very bad)

Consequences of Strategy

		<u>For self</u>	<u>For others</u>	<u>Final Selection</u>
a.	_____	a. _____	_____	_____

b.	_____	b. _____	_____	_____

c.	_____	c. _____	_____	_____

4. Brainstorming specific ways of carrying out strategy

- a. _____

- b. _____

- c. _____

5. Deciding on specific ways of carrying out strategy

(++ = very good; + = good;
 0 = neutral; - = bad;
 -- = very bad)

Consequences of Specific Behaviors

	<u>For self</u>	<u>For others</u>	<u>Final Selection</u>
--	-----------------	-------------------	------------------------

- | | | | |
|----|-------|-------|-------|
| a. | _____ | _____ | _____ |
| b. | _____ | _____ | _____ |
| c. | _____ | _____ | _____ |

APPENDIX M
PROBLEMS IN CAREER DECISION MAKING

1. Lack of Confidence
 - A. In skills necessary for a given occupation
 - B. About the process of career decision making; About how to go about making career decisions.
2. Lack of Information about Occupations
 - A. Entry level Requirements; Salary; Physical and psychological demands of the occupation; Working conditions; Trends--future supply and demand.
3. Lack of Information about Self
 - A. Little appraisal about own skills, interests, values
4. Lack of Decision-Making Skills/Problem-Solving Skills
 - A. Goals--short-range, long-range
 - B. Objectives--specific ways to implement goals
 - C. Future Planning
5. Lack of Other Skills
 - A. Communication Skills
 1. Verbal skills (e.g. public speaking)
 2. Written skills (e.g. grammar, writing, etc.)
 - B. Mathematics (anxiety about mathematics, sciences)
 - C. Job-Seeking Skills

1. Resume-writing
2. Interviewing
6. Personal Conflicts with Self
 - A. Fear of Failure or of Success
 - B. Sex-role Stereotyping of Occupations
 - C. Self-confidence
7. Conflicts with Others
 - A. Expectations of others
 - B. Identification with significant others (e.g. teachers, employers)
8. Other
 - A. Difficulty deciding among a number of good options
 - B. Too few options

APPENDIX N
A DESCRIPTION OF HOLLAND'S PERSONALITY TYPES

Realistic

The realistic type is characterized by individuals who prefer to work with their hands. They may see themselves as rugged, physically strong, and aggressive. They prefer to work outdoors, with tools, and with machinery. They are practical and prefer to deal with tangible, concrete problems rather than with abstract, theoretical issues. Realistic types like jobs such as automobile mechanic, farmer, or electrician.

Investigative

The investigative type is characterized by people who prefer to work with their minds. Individuals in this category are described as analytical, independent, intellectual, methodological and rational. They tend to prefer working alone and may be seen as asocial. Investigative types like jobs such as chemists, physicists, or biologist.

Artistic

The artistic orientation is distinguished by individuals who enjoy emotional self-expression through creative artwork. They may have

writing, musical, or artistic abilities. They are described as expressive, imaginative, original, and nonconforming. The artistic personality type likes jobs such as musician, writer, actor, or interior decorator.

Social

The social type is people-oriented and sociable and prefers to work with others in a helping relationship. Individuals in this category tend to have good social skills and are described as cooperative, friendly, helpful, and responsible. They prefer jobs such as teacher, counselor, psychologist, or religious worker.

Enterprising

The enterprising type is characterized by individuals with strong leadership and verbal skills. They tend to use their verbal skills to lead, influence, or sell to others. They are described as ambitious, sociable, and self-confident. They like jobs such as salesperson, manager, or business executive.

Conventional

The conventional type is characterized by people who like conventional or traditional kinds of work. They are described as conforming, orderly, practical, conscientious, and self-controlled. They prefer structured activities, and like jobs such as bookkeeper, banker, or tax expert.

Description of Holland's types--continued

Adapted from:

Holland, J. L. (1966). The psychology of vocational choice: A theory of personality types and model environments. Waltham, MA: Blaisdell.

Holland, J. L. (1985). The self-directed search professional manual: 1985 Edition. Odessa, FL: Psychological Assessment Resources.

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BIOGRAPHICAL SKETCH

Pauline McNeill was born June 25, 1960, in Erwin, North Carolina. She attended public school in Harnett County prior to entering the University of North Carolina at Chapel Hill in 1978 as a James M. Johnston Scholar. She received a Bachelor of Arts degree with honors in psychology from the University of North Carolina in 1982 and entered graduate school in clinical psychology at the University of Missouri in St. Louis on a Charles Stewart Mott Fellowship.

She transferred to the University of Florida in June 1983 to begin doctoral study in counseling psychology. At the University of Florida, she has been the recipient of a Graduate Minority Fellowship and the Delores Auzenne Fellowship and was named to honorable mention in the American Psychological Association Minority Fellowship program. In 1989 she was awarded the Martin Luther King Jr. Award for Academic Excellence by the Office of Graduate Minority Programs at the University of Florida.

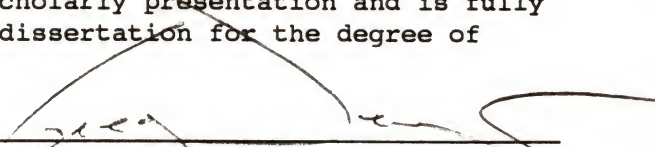
She was admitted into doctoral candidacy in December 1986. She completed an internship in counseling psychology at the Counseling and Consultation Service at the Ohio State University from 1987 to 1988.

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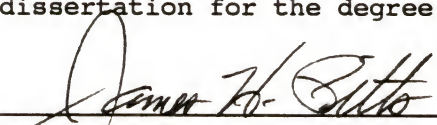
Carolyn M. J. Tucker, Chairman
Professor of Psychology

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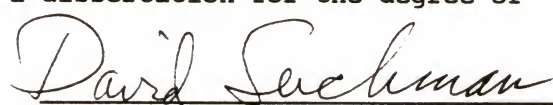
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This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December 1990

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